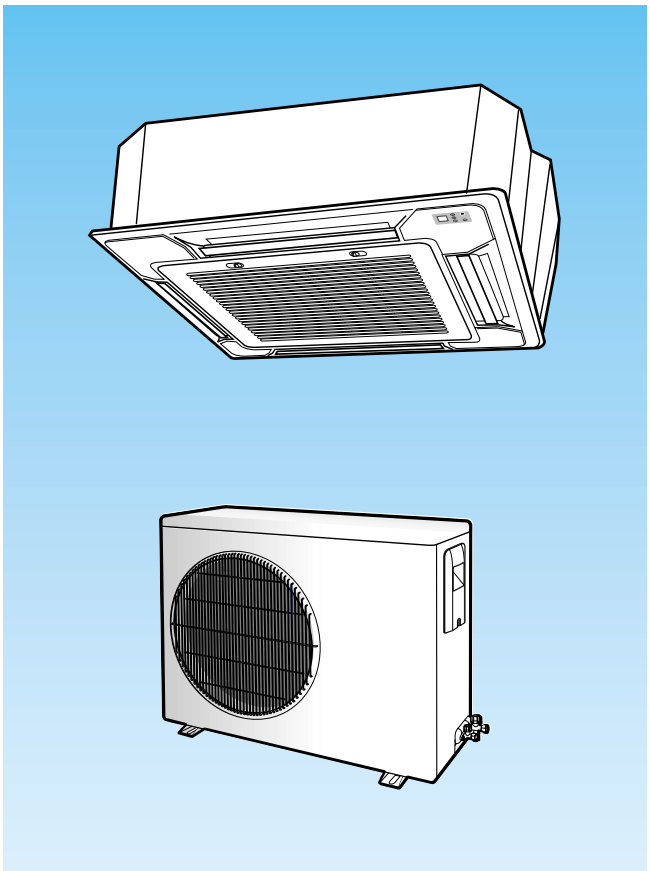
SAMSUNG

CASSETTE TYPE AIR CONDITIONER

INDOOR UNIT	OUTDOOR UNIT
CH052EAM	UH052EAMT
CH070EAM	UH070EAMT

SERVICE Manual

AIR CONDITIONER



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1. Product Specifications

1-1 Table

MODEL	INDOOR UNIT			CH052EAM	CH070EAM
	OUTDOOR UNIT			UH052EAMT	UH070EAMT
Capacity	Cooling		BTU/h	18,700	23,800
			W	5,500	7,000
	Heating		BTU/h	20,400	26,100
			W	6,000	7,700
Power Supply			ø/V/Hz	1/220 ~ 240/50	1/220 ~ 240/50
Power Input	Cooling		W	1,700	2,400
	Heating		W	1,800	2,400
Running Current	Cooling		A	7.5	10.6
	Heating		A	7.9	10.6
Indoor Unit	Fan Speed	H.H	r.p.m	-	-
		Hi	r.p.m	340	430
		Mid	r.p.m	300	330
		Low	r.p.m	260	230
	Air Flow	H.H	m^3/min	-	-
		Hi	m^3/min	14	17
		Mid	m^3/min	12	14
		Low	m^3/min	11	11
	Noise Level(Hi) (Sound Pressure)	Cooling(Hi)	dB(A)	32	37
		Heating(Hi)	dB(A)	32	37
	Heat Exchanger	Type		Slit	Slit
		Row x Stages x Fin pitch		2 x 8 x 1.4mm	2 x 8 x 1.4mm
	Fan	Type		Turbo	Turbo
		Motor Output	W	9.8	20
	Dimensions	H	mm	230	230
		W	mm	840	840
		D	mm	840	840
	Weight	Net / Gross	kg	26 / 31	26 / 31
Outdoor Unit	Fan Speed	Hi	r.p.m	750	850
		Low	r.p.m	400	340
	Air Flow(Hi)		m^3/min	45	51
	Noise Level (Sound Pressure)	Cooling(Hi)	dB(A)	60	60
		Heating(Hi)	dB(A)	61	61
	Fan	Type		Propeller	Propeller
		Motor Output	W	60	73
	Compressor	Type		Rotary	Rotary
		Model		NN21VBAMT	NN29VACMT
		Motor Output	kW	1.3	1.9
		Protection		Internal	Internal

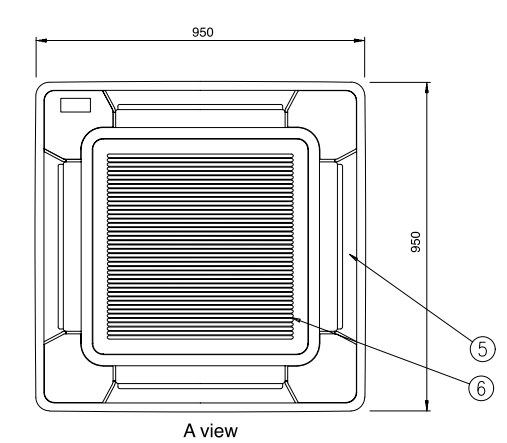
Table(cont.)

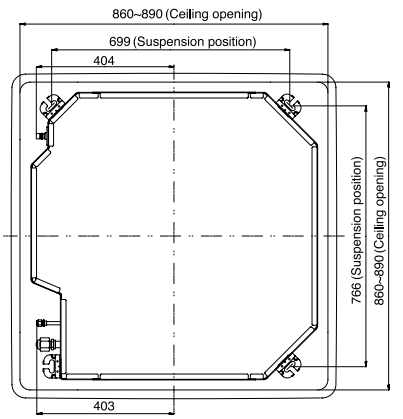
MODEL	INDOOR UNIT			CH052EAM	CH070EAM
	OUTDOOR UNIT			UH052EAMT	UH070EAMT
Outdoor Unit	Refrigerant	Type		R410A	R410A
		Charge	g	1,550	1,650
		Adding Charge	g / m	30	35
		Control		Elec.Expansion Valve	Elec.Expansion Valve
	Heat Exchanger	Type		Slit	Slit
		Row x Stages x Fin pitch		2 x 28 x 1.5	2 x 28 x 1.5
	Dimensions	H	mm	648	648
		W	mm	880	880
		D	mm	310	310
	Weight	Net / Gross	kg	67 / 72	69 / 74
Piping	Pipe O.D Size	Liquid	mm(inch)	6.35(1/4")	6.35(1/4")
		Gas	mm(inch)	12.7(1/2")	15.88(5/8")
	Connection Method			Flare	Flare
	Between	Height	m	Max.15	Max.15
		Pipe Length	m	Max.30	Max.30

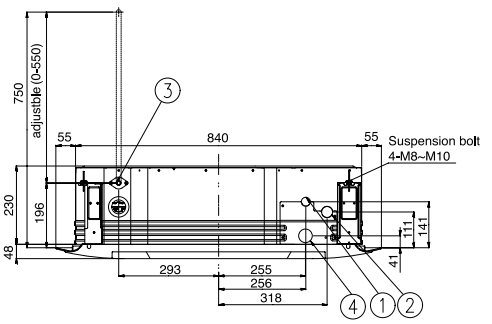
1-2 Dimensions

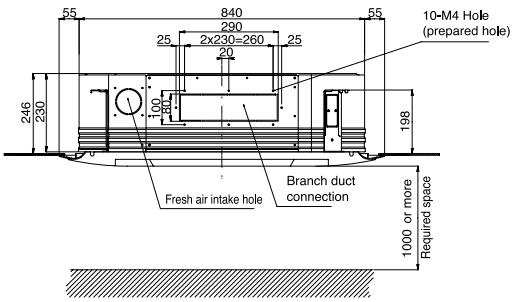
1-2-1 Indoor Unit

(Unit : mm)





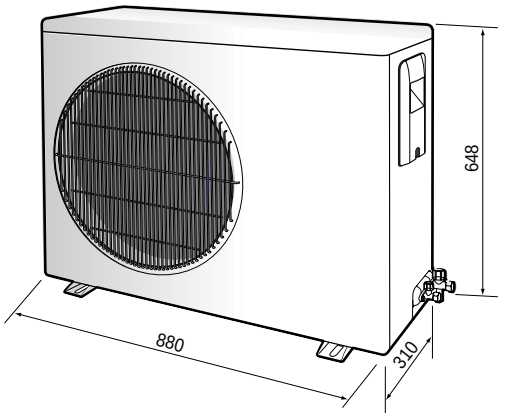




No.	Name	Model	
		CH052EAM	CH070EAM
1	Liquid pipe connection	ø6.35(1/4")	ø6.35(1/4")
2	Gas pipe connection	ø12.7(1/2")	ø15.88(5/8")
3	Drain pipe connection		
4	Power supply connection		
5	Air discharge grille		
6	Air suction grille		

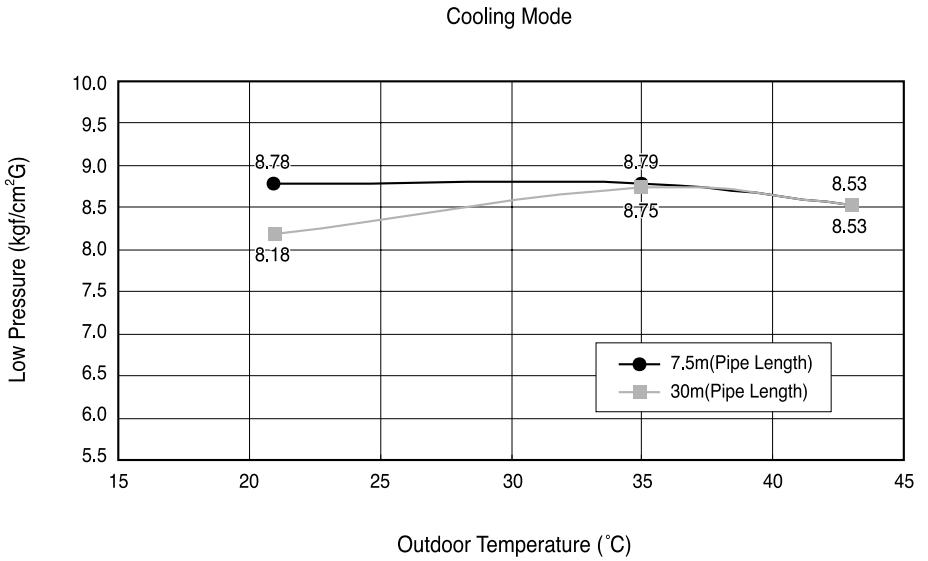
1-2-2 Outdoor Unit

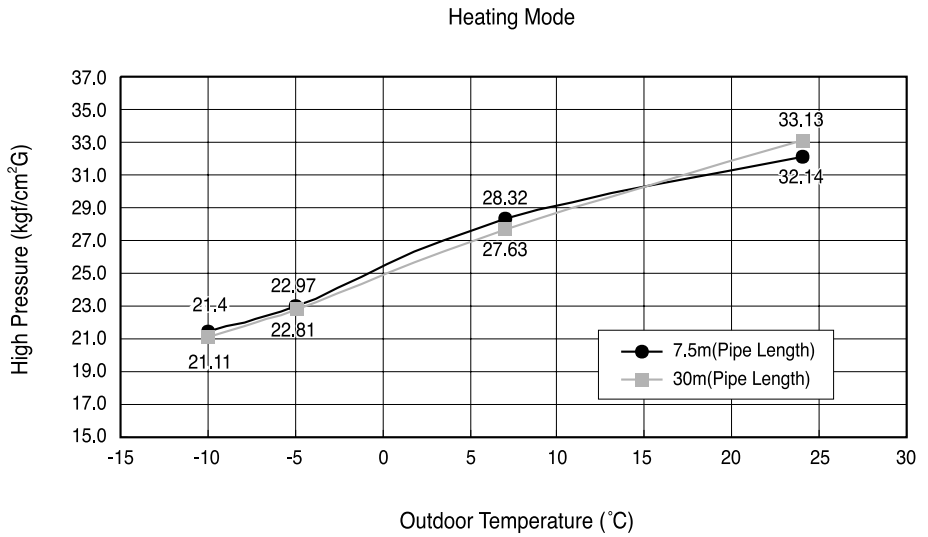
(Unit : mm)



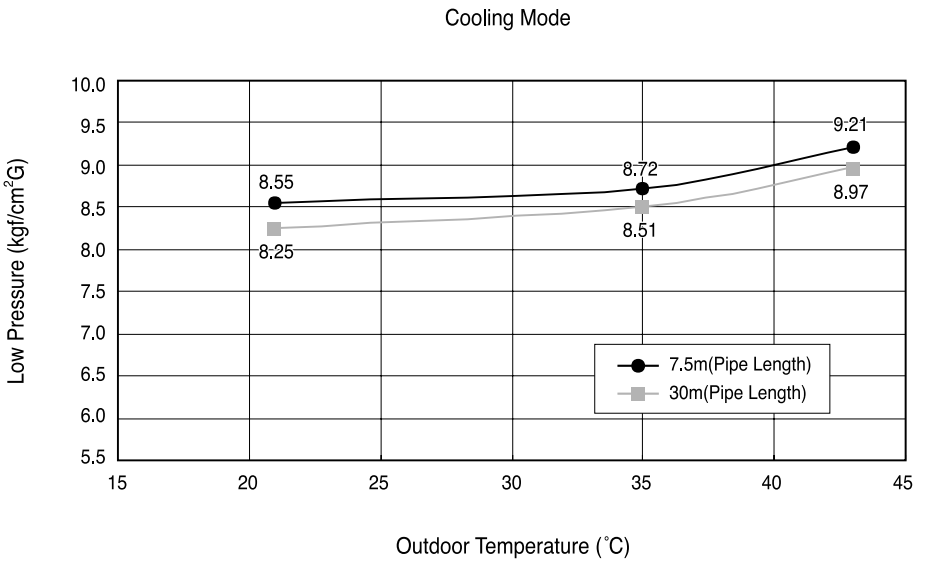
1-3 Pressure Graph

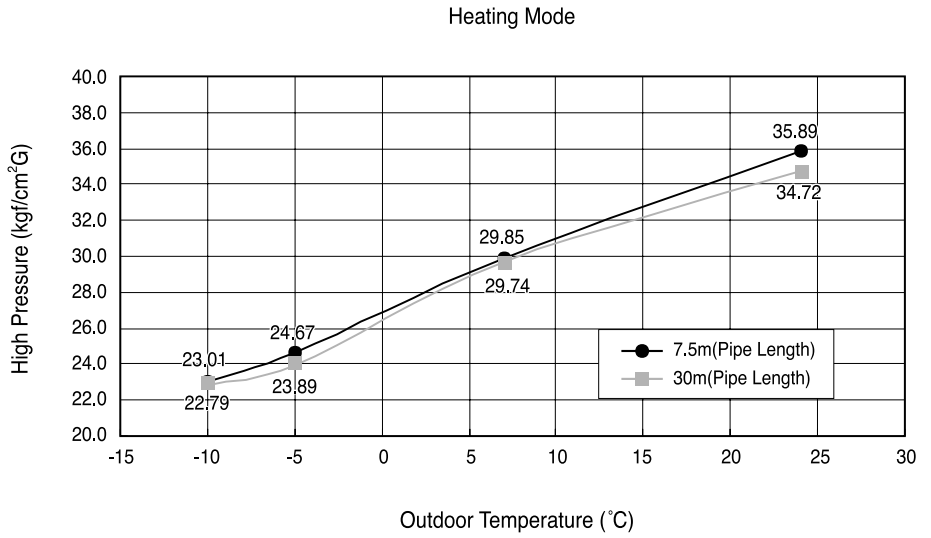
■ CH052EAM / UH052EAMT





■ CH070EAM / UH070EAMT

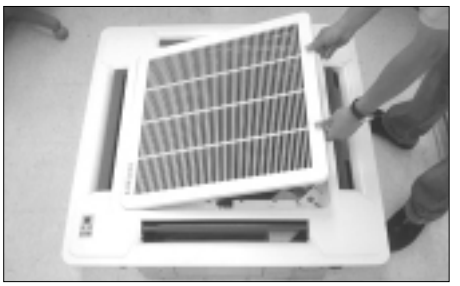
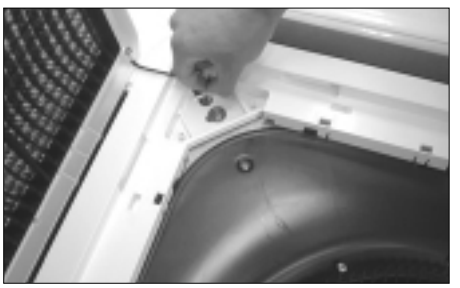


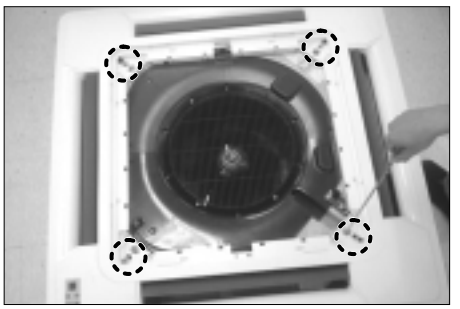
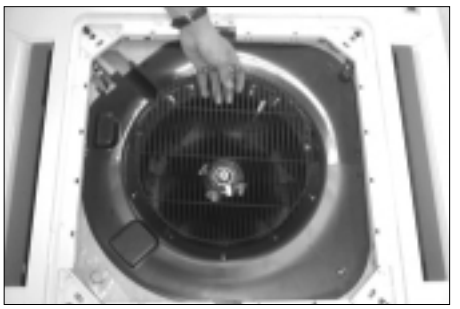
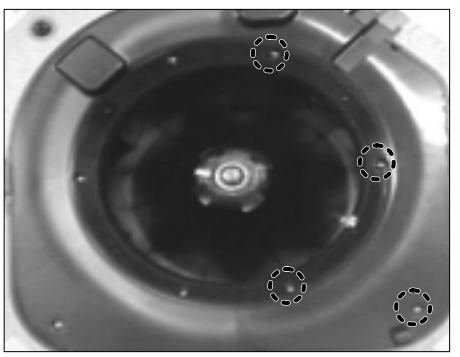
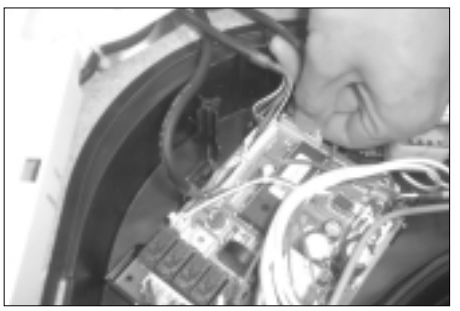


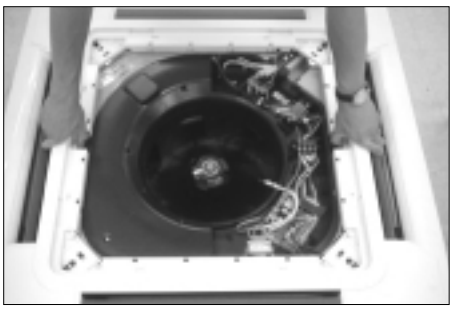
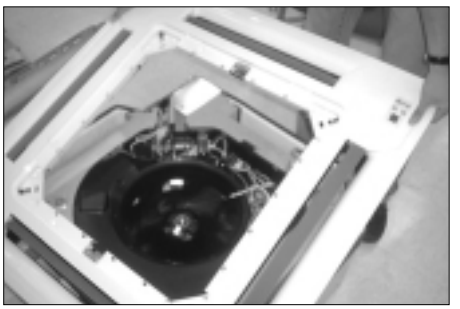
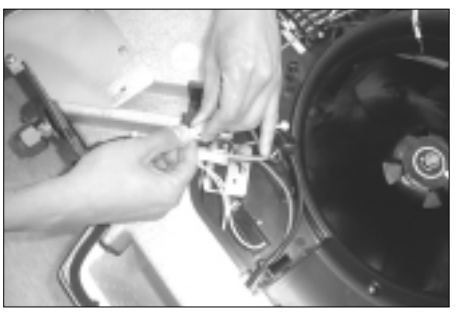
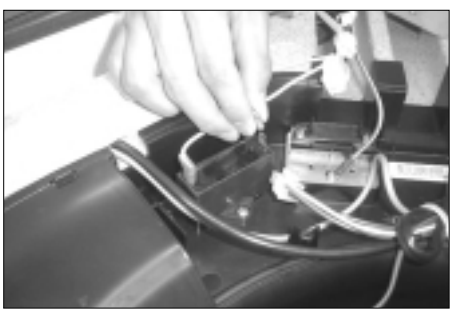
2. Disassembly and Reassembly

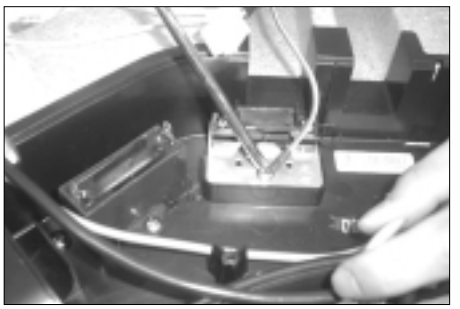
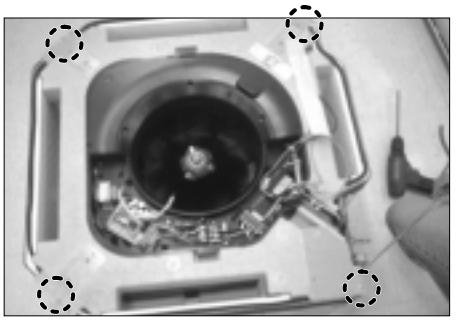
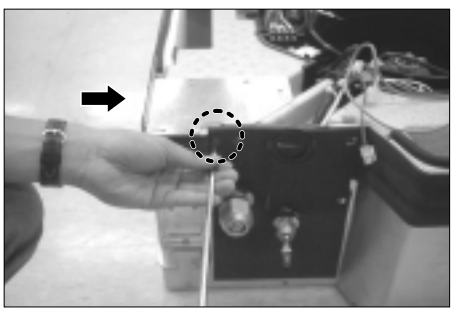
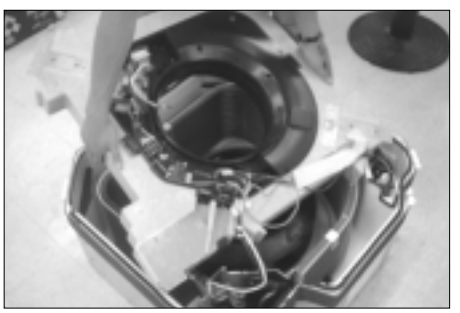
Stop operation of the air conditioner and remove the power cord before repairing the unit.

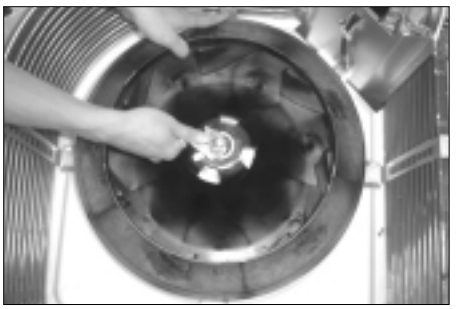
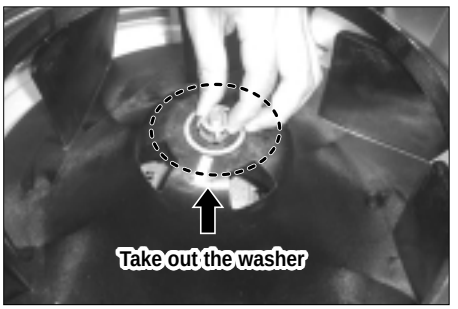
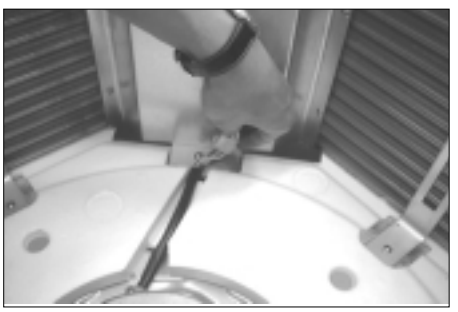
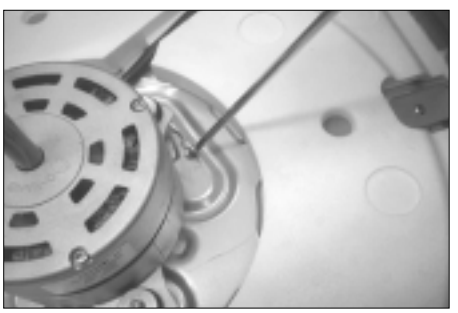
2-1 Indoor Unit

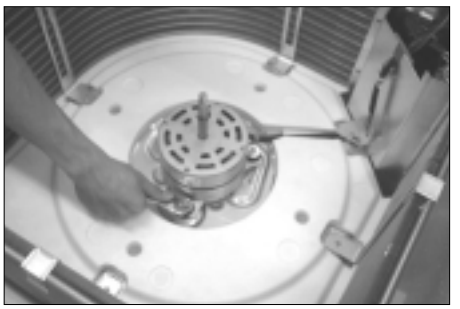
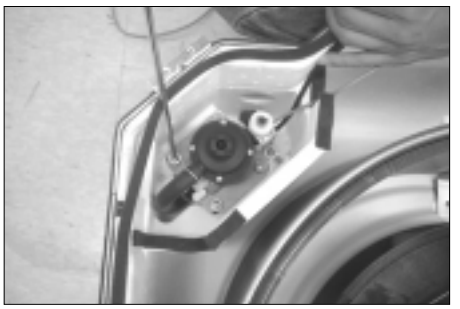
No	Parts	Procedure	Remark
1	Front Grille - Dust-Collecting Filter	1) Push the tap on the Front Grille to open it.	
		2) Disassembly of Front Grille. (1) Open the Front Grille at about 45° degrees and draw it forward.	
		(2) Disassemble the safety clip.	
		3) Filter Disassembly (1) Draw the dust-collecting Filter forward.	
		(2) Disassemble the Filter.	

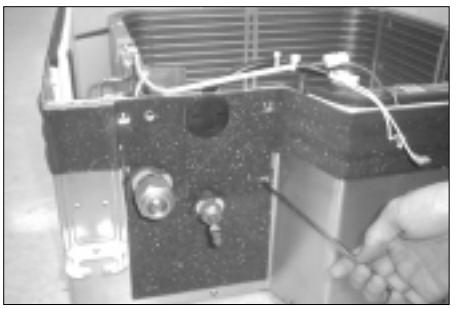
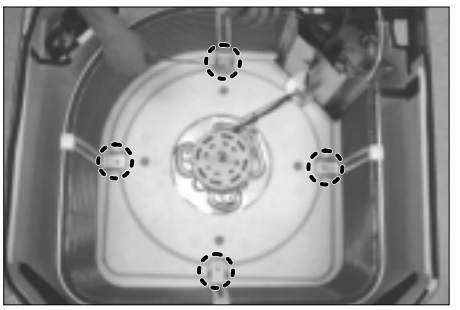
No	Parts	Procedure	Remark
		4) Loosen the 4 bolts slowly.	
		5) Loosen the bolt of the front net to disassemble the safety net.	
			
		6) Loosen the 4 bolts in the mark ◌ to uncover the Component Electric Box cover.	
		7) Disassemble the 3 cables between the indoor unit and the Panel. - Stepping Motor Connector - Receiving & Display Unit Connector Option	

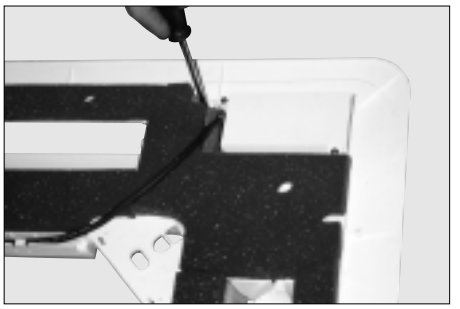
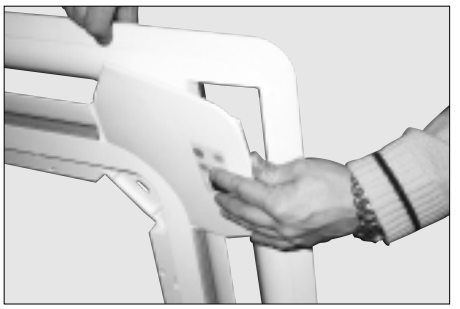
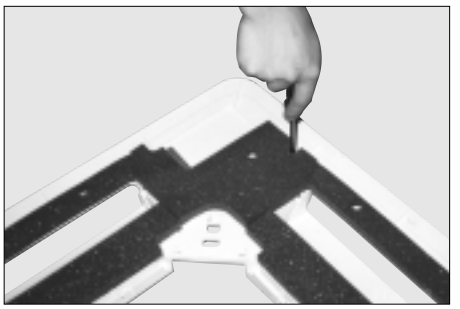
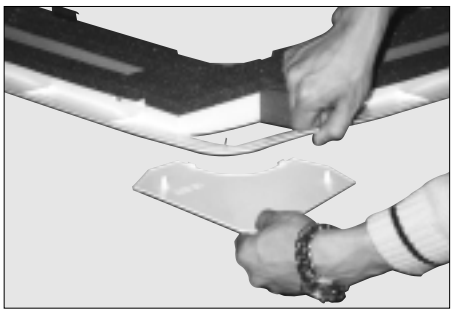
No	Parts	Procedure	Remark
		8) Hold on the two hooks on both sides of the indoor unit and disassemble the Front Panel.	
		9) Take away the disassembled Panel out of the main body.	
2	Electronic Part - Indoor & Outdoor Connecting Cable	1) Disconnect all the indoor and outdoor cables connected to the Terminal Board.	
3	Fan & Motor	1) Disassemble the Fan Motor wire connector, thermistor wire connector, and Drain Pump wire connector.	
		2) Disassemble the wire connector in the Capacitor.	

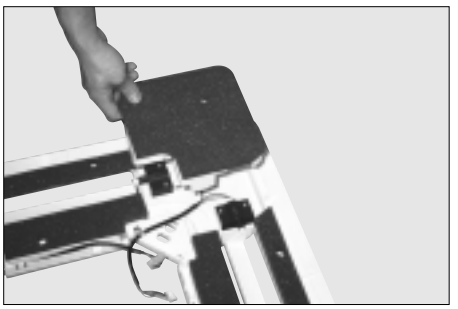
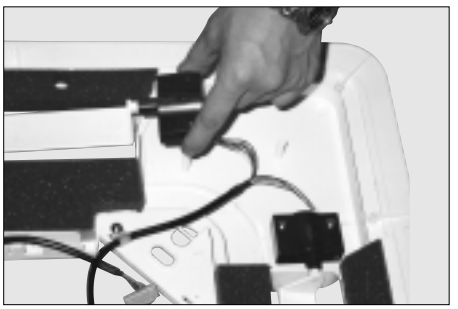
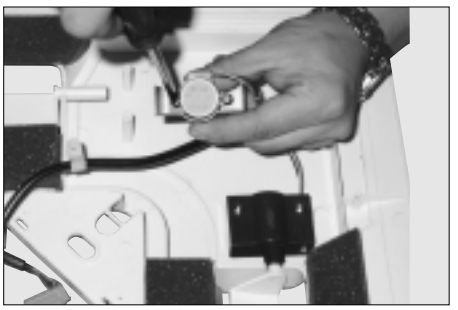
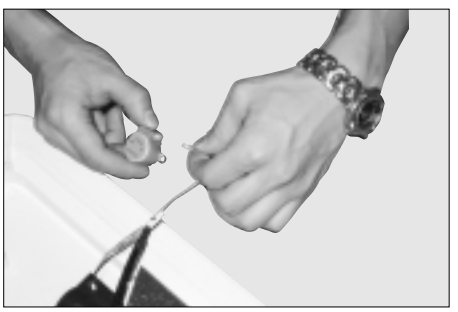
No	Parts	Procedure	Remark
		3) Disassemble the ground wire.	
		4) Disassemble the Float Switch wire connected to the Terminal Port.(F1, F2)	
		5) Loosen the 8 bolts in the mark ◌.	
		6) Loosen a bolt in the arrow direction and ◌ inside.	
		7) Disassemble the Drain Cushion from the main body.	

No	Parts	Procedure	Remark
		8) Loosen the nut.	
		9) Lift the fan to disassemble from the Motor.	
		10) Disassemble the Motor connector wire.	
		11) Disassemble the ground wire.	

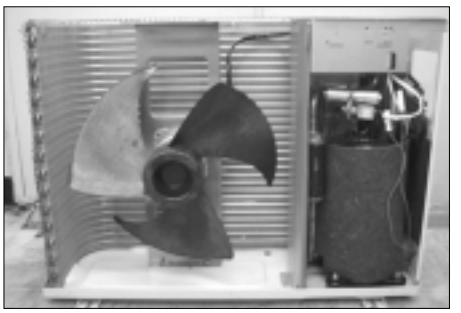
No	Parts	Procedure	Remark
		12) Loosen 3 nuts to disassemble the Motor.	
4	Pump	1) Loosen the 4 bolts of the Drain Pump.	
		2) Disassemble the Hose from the Drain Pump.	
		3) Disassemble the Pump from the main body Bracket.	

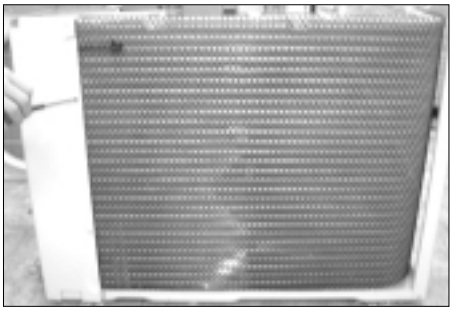
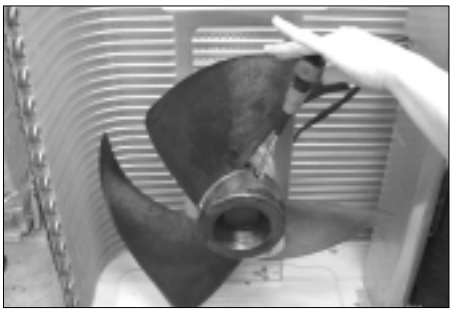
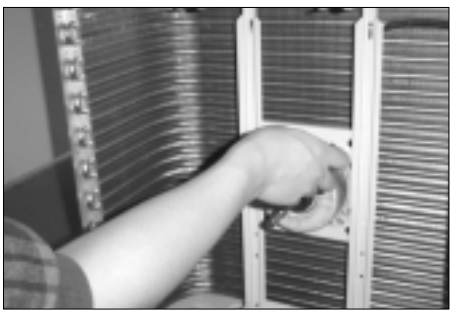
No	Parts	Procedure	Remark
5	Heat Exchanger	1) Disassemble the cover pipe beside the main body.	
		2) Loosen the 2 bolts fixing the Heat Exchanger to the indoor unit Base.	
		3) Disassemble the 4 fixing Brackets of the Heat Exchanger to disassemble it from the main body.	

No	Parts	Procedure	Remark
6	Front Panel - Cover Front	❋ Do "1", above. Push 3 Cover Front fixing screws inside the Front Panel and snap fixing part to detach the Cover Front.	   

No	Parts	Procedure	Remark
7	Front Panel - Stepping Motor	❋ Do "1", above. 1) Loosen each one of fixing screw at the corner part, (1) cushion side-A and cushion side-B inside the Front Panel, and then lift it up.	
		2) Remove (1) the screw of Housing Motor L/R fixed at the corner part of Front Panel inside and detach (2) Blade-H.	
		3) (1) Detach the Stepping Motor from the Housing Motor L/R and (2) detach the Motor wire connected.	 

2-2 Outdoor Unit

No	Parts	Procedure	Remark
1	Common Work	1) Loosen the fixing screws and detach the Cover Control. 2) Detach the connection wire from the Terminal Block.	
		3) Loosen the fixing screws and detach the Upper Cabinet.	
		4) Loosen the fixing screws and detach the Front Cabinet.	
		5) Loosen 2 screws and pull up the Control Box.	
		6) Detach the terminal cover and detach the Comp lead wire.	

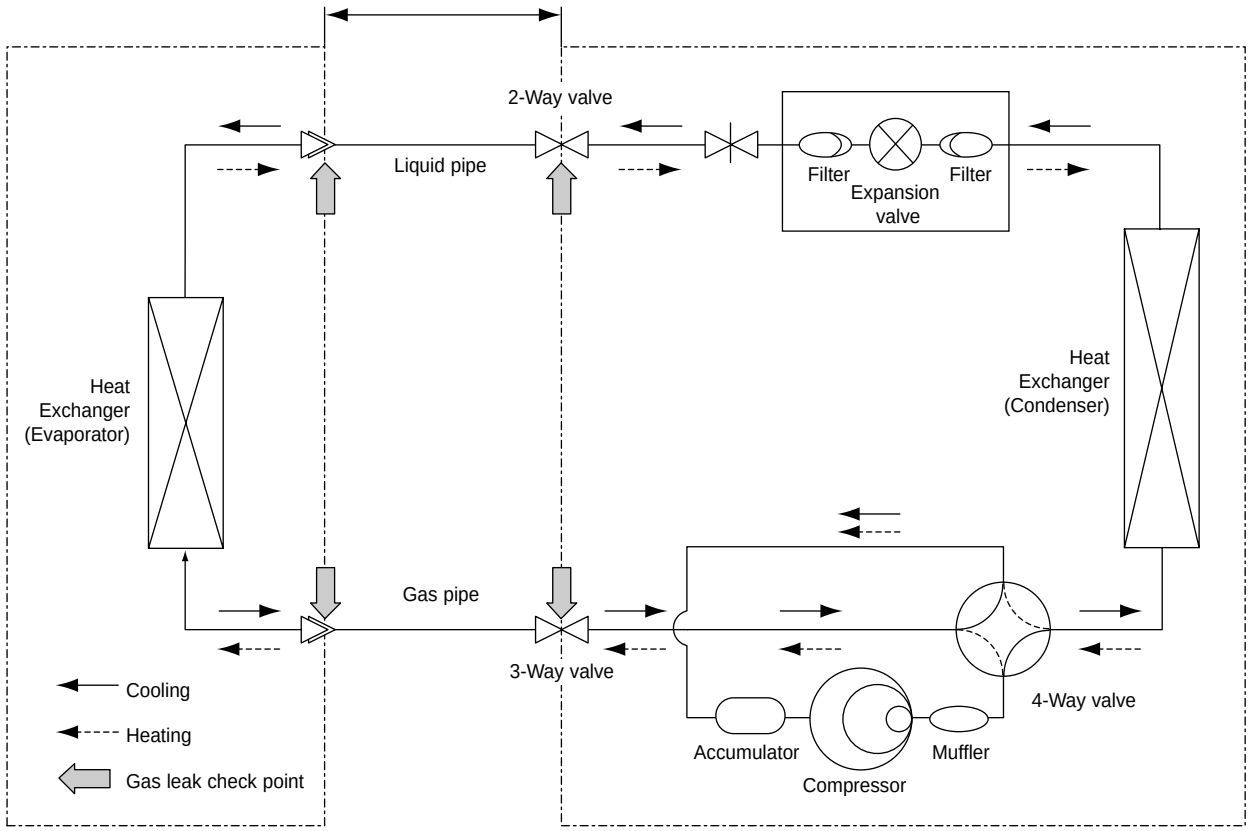
No	Parts	Procedure	Remark
		7) Loosen the fixing screws and detach the Cabinet Side.	
2	Fan & Motor	1) Loosen the fixing bolt and detach the Fan.	
		2) Loosen 4 fixing bolts to detach the Motor.	

No	Parts	Procedure	Remark
3	Heat Exchanger & Compressor	1) Release the refrigerant at first. 2) Disassemble the inlet and outlet pipe by welding. 3) Loosen the fixing screws of the Heat Exchanger. 4) Detach the Heat Exchanger. 5) Loosen four bolts of the Compressor. 6) Detach the Compressor.	

3. Refrigerating Cycle Diagram

Indoor Unit **Outdoor Unit**

❋ Allowable pipe length : Max. 30m
❋ Allowable drop distance : Max. 15m



4. Set Up the Model Option

4-1 Setting Option Setup Method

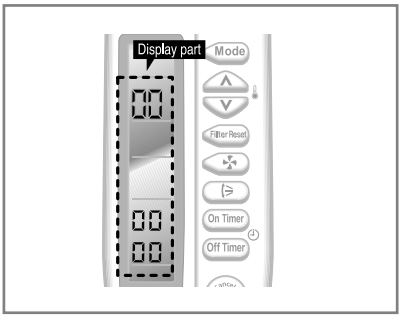
ex) Option No. : 08511 5-1 d2340

Step 1 : **Enter the Option Setup mode.**

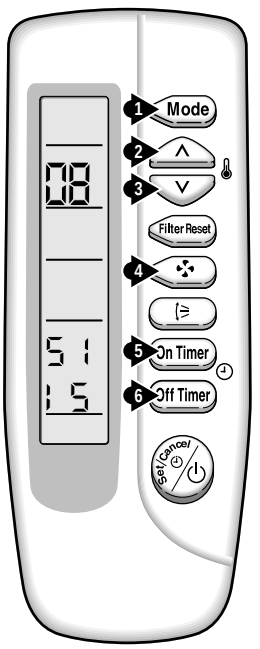
1st Take out the batteries of remote control.

2nd Press the temp. button simultaneously and insert the battery again.

3rd Make sure the remote control display shown as 00 00 00 .



Step 2 : **Enter the Option Setup mode and select your option according to the following procedure.**



✻ Setting is not required if you must 0 a value which has a 0 default.

1

The default value is 00 00 00 .
Otherwise, push the Mode button to 0 .
Every time you push the button, the display panel reads 1 or 0 repeatedly.

2

Push the button to set the display panel to 8 .
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ · · · 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

3

Push the button to set the display panel to 5 .
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ · · · 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

4

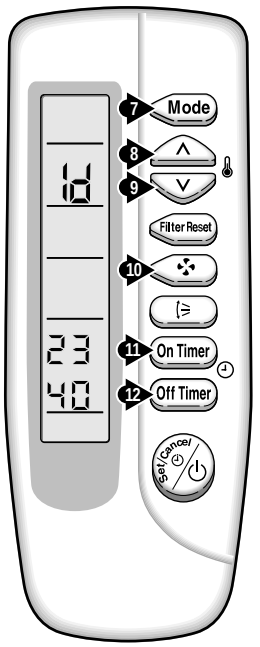
Push the button to set the display panel to 1 .
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ · · · 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

5

Push the On Timer button to set the display panel to 1 .
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ · · · 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

6

Push the Off Timer button to set the display panel to 5 .
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ · · · 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.



✻ Setting is not required if you must 0 a value which has a 0 default.

7 Press Mode button, then the default value is 10 88 00 .

8 Push the ∧ button to set the display panel to d .
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ · · · 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

9 Push the ∨ button to set the display panel to 2 .
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ · · · 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

10 Push the button to set the display panel to 3 .
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ · · · 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

11 Push the On Timer button to set the display panel to 4 .
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ · · · 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

12 Push the Off Timer button to set the display panel to 0 .
Every time you push the button, the display panel reads 0 ➡ 1 ➡ 2 ➡ 3 ➡ · · · 9 ➡ A ➡ b ➡ c ➡ d ➡ E ➡ F repeatedly.

Step 3 : Upon completion of the selection, check you made right selections.

Press the Mode Selection key, Mode to set the display part to 0 and check the display part.

➡ The display part shows 08 51 15 .

Press the Mode Selection key, Mode to set the display part to 1 and check the display part.

➡ The display part shows 1d 23 40 .

Step 4 : Pressing the ON/OFF button ( )

When pressing the operation ON/OFF key with the direction of remote control for unit, the sound "Ding" or "Diriring" is heard and the OPERATION ICON( ) lamp of the display is flickering at the same time, then the input of option is completed. (If the diriring sound isn't heard, try again pressing the ON/OFF button.)

Step 5 : Unit operation test-run

First, Remove the battery from the remote control.

Second, Re-insert the battery into the remote control.

Third, Press ON/OFF button( ) with the direction of remote control for set.

• Error Mode

1st If all lamps of indoor unit are flickering, Plug out, plug in power plug again and press ON/OFF key to retry.

2nd If the unit is not working properly or all lamps are continuously flickering after setting the option code, see if the correct option code is set up for its model.

■ OPTION ITEMS

REMOTE CONTROL / MODEL	SEG1	SEG2	SEG3	SEG4	SEG5	SEG6	SEG7	SEG8	SEG9	SEG10	SEG11	SEG12
CH052EAM	0	4	5	0	0	0	1	A	0	0	0	0
CH070EAM	0	4	5	0	0	0	1	c	0	0	0	0

5. Control Specification & Troubleshooting

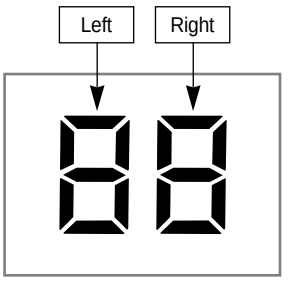
5-1 Operation Specification

5-1-1 Tracking process marked on display part

• Left numeral is an address that outdoor unit transfers communication.
0 - 1 - 2 - 3 ... - F (Calling indoor unit)

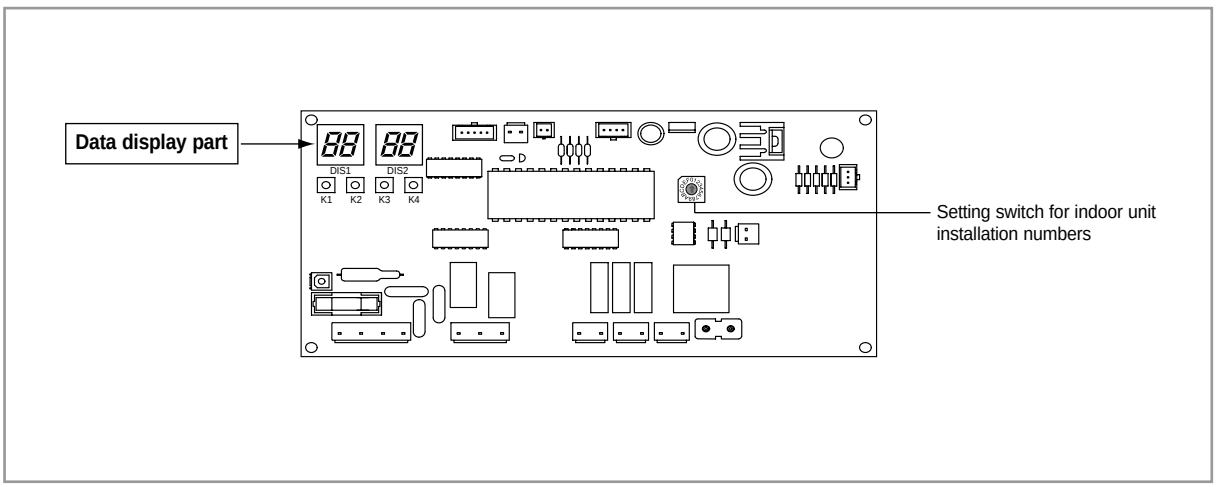
• Right numeral marks address that is answered.

• During the tracking, left calls indoor unit through
0 - 1 - 2 - 3 ... - d - E - F and checks. At this time connected indoor unit set on " 0 " and the indoor unit set 0 address marked on right.
Right side mark is marked by when left side is 0 .
(If SW02(MAIN) that set indoor unit address is controlled to " 0 ", indoor unit number marked on outdoor unit is marked by " 0 ".)



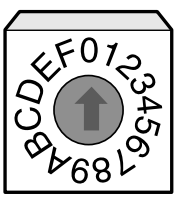
DISPLAY PART (DS1)

5-1-2 Option set part for Outdoor unit PCB



Setting switch for indoor unit installation numbers

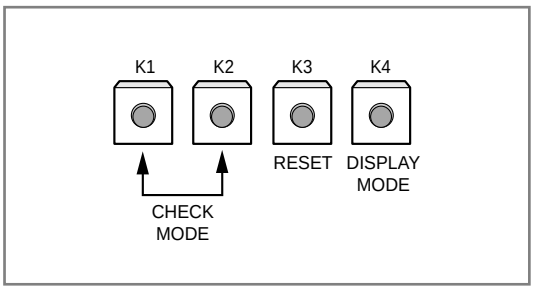
Counts of Indoor Unit Installation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Numbers of the switch	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F



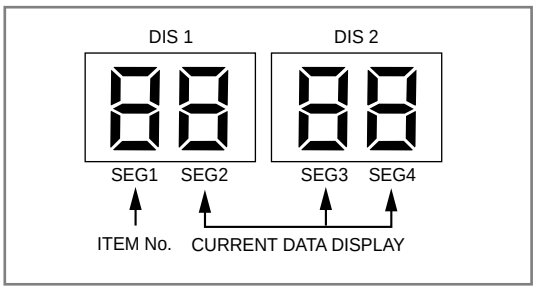
● Example : When the installed indoor unit is one, control the arrow of switch forward to '0' or '1' as figure.

5-1-3 Setting Up Option Switches

■ KEY



■ Display



■ Summary of KEY functions

Function / Number of press times	K1 (Displayed on SEG 3, 4)	K2 (Displayed on SEG 3, 4)	K3 (Displayed on SEG 3, 4)	K4 (Displayed on SEG 3, 4)
1	Adding refrigerant at heating mode	Adding refrigerant at cooling mode	Reset	Displays data
2	Test operation at heating mode	Test operation at cooling mode	-	-
3	End	Pump Down for recovery of refrigerant	-	-
4	-	End	-	-

✻ Use the K1 only for heat pump models.

5-2 Troubleshooting

When error occurs in air conditioner, error code is displayed on indoor unit display lamp and outdoor unit.

5-2-1 Indoor unit LED error diagnosis

■ Error detection and reoperation

- If error occurs during the operation, badness is indicated by LED flickering and all operation is stopped except LED.
- When reoperating by remote control and switch determine the error mode after normal operation.

■ Indoor unit LED lamp display at error detecting

Error type	LED lamp display				Remarks
	Operation	Timer	Air flow	Filter	
POWER RESET	◑	×	×	×	
Room Temperature sensor error (OPEN/SHORT)	×	◑	×	×	Applied indoor unit error display (Indoor unit display only during the operation)
Indoor heat exchanger temperature sensor error	◑	◑	×	×	Applied indoor unit error display (Indoor unit display only during the operation)
Outdoor temperature sensor error Condenser temperature sensor error Discharge temperature sensor error	◑	×	◑	×	The whole indoor unit error display Outdoor unit separated Display (Indoor unit display only during the operation)
1. No communication for 2 minutes between indoor unit and outdoor unit Indoor unit detection (Communication error over 2 minutes) 2. Indoor unit received communication error signal from outdoor unit 3. Outdoor unit tracking 3 minutes error 4. After completion of tracking, when outdoor unit transfers communication error due to mismatch installing numbers with communicating numbers (Communication error over 2 minutes)	×	◑	◑	×	1. Indoor unit error (Display is unrelated with operation) 2. Outdoor unit error (Display is unrelated with operation)
Communication error between indoors (Operation multi at the same time and group control)	◑	×	×	◑	Indoor unit display
Self diagnosis error display(including non-detected indoor unit) 1. Electronic valve closing status error 2. Electronic valve opening status error	×	◑	◑	◑	Applied indoor unit error Display Outdoor unit separated Display (Indoor unit display only during the operation)
1. The sixth detection of high temperature of Cond 2. The sixth detection of high temperature of Discharge 3. Reverse phase error	×	◑	◑	◑	The whole indoor unit error display Outdoor unit separated Display (Indoor unit display only during the operation)
Detection of floating S/W	×	×	◑	◑	
Error to the set of option for auxiliary control device	×	◑	×	◑	
EEPROM ERROR	◑	◑	◑	×	
EEPROM OPTION ERROR	◑	◑	◑	◑	

● : On ◑ : Flickering × : Off

5-2-2 Outdoor Unit

If an error occurs during the operation, it is displayed on the outdoor unit PCB.

Display	Explanation	Remark
Er↔P0	High temp. of Discharge (Protection control)	Error about protection control of outdoor unit
Er↔P1	High temp. of outdoor heat exchanger (Protection control)	
Er↔P5	COMP DOWN to protect being frozen	
Er↔P6	Error of momentary power failure (disappears when the unit is Off/On)	
Er↔t1	Error of OUT TEMP. sensor (OPEN/SHORT)	Errors about outdoor unit sensor (OPEN/SHORT) Detection during the operation of indoor unit (Sensing and sending errors into the communication data)
Er↔t2	Error of temp. sensor in outdoor heat exchanger (OPEN/SHORT)	
Er↔t3	Error of Discharge TEMP. sensor (OPEN/SHORT)	
Er↔E1	System Down caused by communication error after completion of tracking	Communication and indoor unit errors
Er↔E2	Mismatching of the indoor unit numbers set with those communicated after completion of tracking	
Er↔E3	Error of float switch in indoor unit	Self-diagnosis of indoor and outdoor unit (x:indoor unit address)
Er↔E5	Error of setting option switches for optional accessories	
Er↔9x	OPEN/SHORT error of room sensor in indoor unit	
Er↔rx	OPEN/SHORT error of evap in sensor in indoor unit	
Er↔ux	Error of fan starting	Displays of operating status
Er↔G4	Open error of electronic expansion valve in outdoor unit (Detected once or more times)	
Er↔G5	Close error of electronic expansion valve in outdoor unit (Detected once or more times)	
tU Flicker	Below -5°C when cooling (Outdoor temp.)	
tO Flicker	Over 30°C when heating (Outdoor temp.)	
K1, K2, K3, K4, K5 Flicker	Refer to page 15	

The order of priority : E1 → E2 → E4 → E5 → P0 → P1 → P5 → P6 → t1 → t2 → t3 → tu → to → G4 → G5 → E3 → qx → rx → vx → K1, K2, K3, K4, K5

- In case that the same error displays from multi-indoor units, the one having the faster address has the priority.

5-2 Troubleshooting

5-2-1 Wired remote controller display error occurring

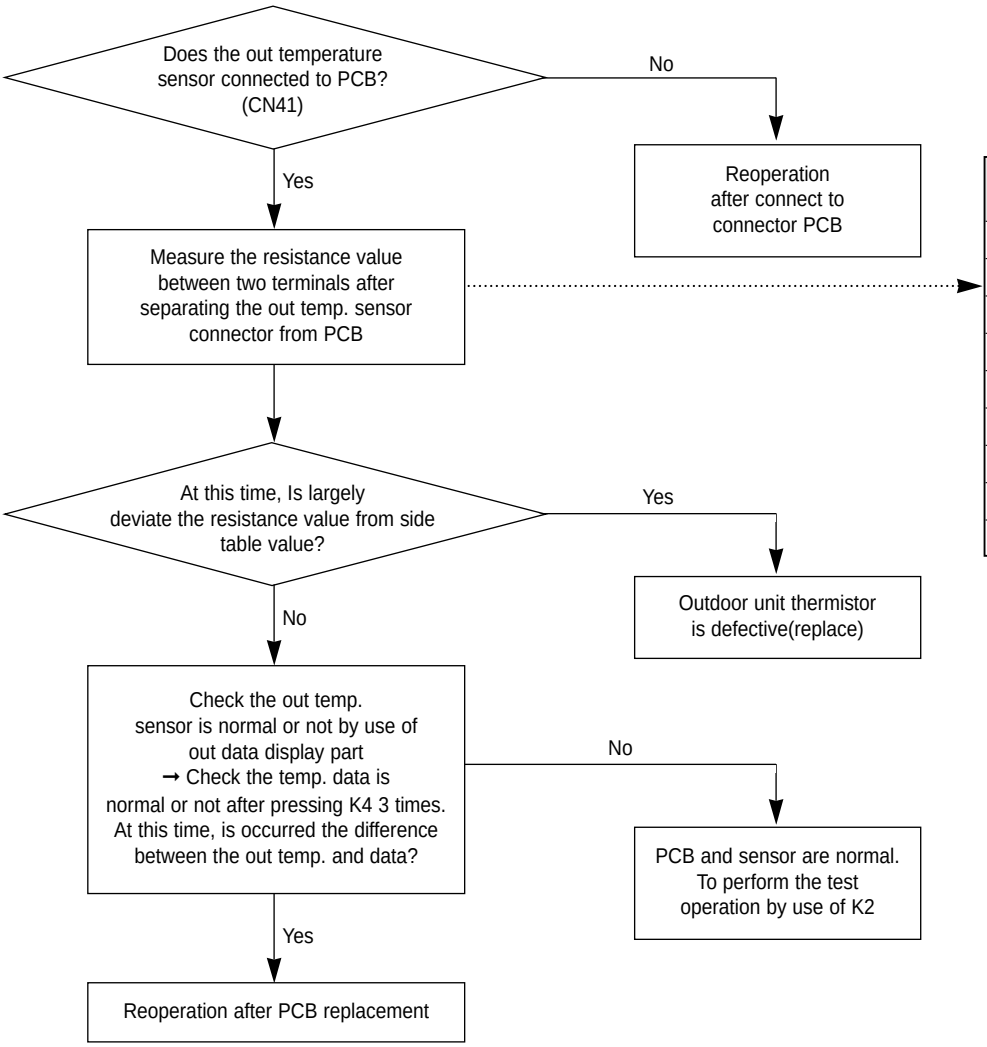
■ If an error occurs, TEST is displayed on the wired remote controller.
If you would like to see an error code, press the Test button.

Display	Description	Remarks
416	Compressor down due to protection control of the discharge temperature sensor	Error about protection control of the outdoor unit
450	Control due to the condenser temperature sensor when cooling mode	
451	Error of the low pressure switch (Protection control)	
425	Reverse phase error (Protection control)	
551	In removing frost	
221	Error of the outdoor temperature sensor (Open/Short)	Error about the outdoor unit sensor (Open/Short) Detection during the operation of the indoor unit (sensing and sending errors into the communication data)
230	Error of condensor temperature sensor (Open/Short)	
251	Error of discharge temperature sensor (Open/Short)	
201	- System down caused by communication error after completion of tracking - Mismatching of the indoor unit numbers set with those communication after completion of 5 times tracking	Communication and the indoor unit errors
121	Error of temperature sensor in the indoor unit (Open/Short)	Self-diagnosis of the indoor and outdoor unit
122	Error of the heat exchanger sensor in the indoor unit (Open/Short)	
419	Error of electronic expansion valve open in the outdoor unit (when it is detected more than once)	
422	Error of electronic expansion valve close in the outdoor unit (when it is detected more than once)	
601	Error of communication between the indoor unit and the wired remote controller	Wired remote controller errors
602	Master wired remote controller ↔ Slave wired remote controller	
606	COM1/COM2 Cross-installed error	
0EA	Error of setting option for wired remote controller COM2	

5-3 Sequence for trouble diagnosis

5-3-1 Outdoor temp. sensor(OPEN/SHORT)

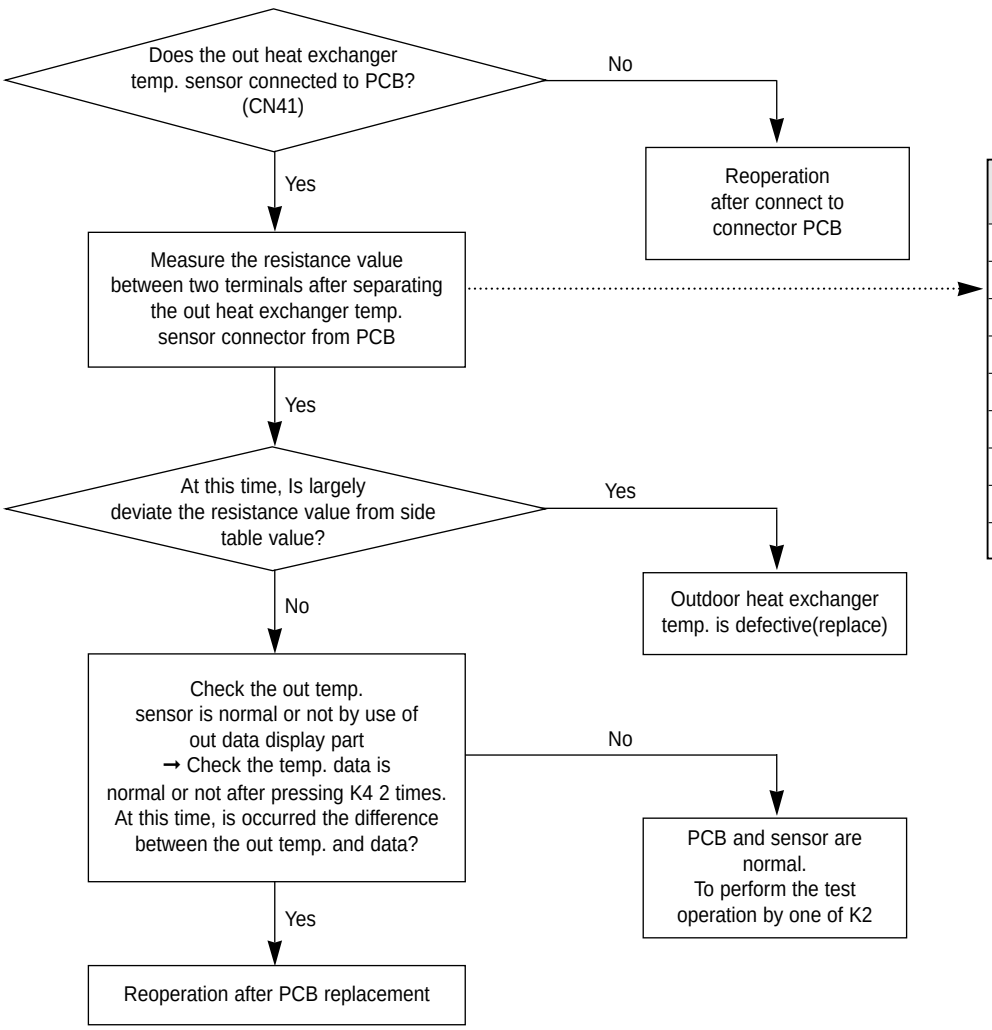
Outdoor unit display	**Er → t1 (Outdoor temp. sensor OPEN/SHORT error)**
Indoor unit display	◑ (Operation) × (Timer) ◑ (Airflow) × (Filter)
How to determine	Disconnection and short of outdoor temp. sensor
Reason of error	Disconnection or leak of applied sensor


Does the out temperature sensor connected to PCB? (CN41)
No
Reoperation after connect to connector PCB
Yes
Measure the resistance value between two terminals after separating the out temp. sensor connector from PCB
At this time, Is largely deviate the resistance value from side table value?
Yes
Outdoor unit thermistor is defective(replace)
No
Check the out temp. sensor is normal or not by use of out data display part → Check the temp. data is normal or not after pressing K4 3 times. At this time, is occurred the difference between the out temp. and data?
No
PCB and sensor are normal. To perform the test operation by use of K2
Yes
Reoperation after PCB replacement

Temp. (˚C)	Resistance (kΩ)
70	2.2
60	3.0
50	4.2
40	5.8
30	8.3
20	12.1
10	18.0
0	27.3
-10	43.0

5-3-2 Outdoor heat exchanger temp. sensor error(OPEN/SHORT)

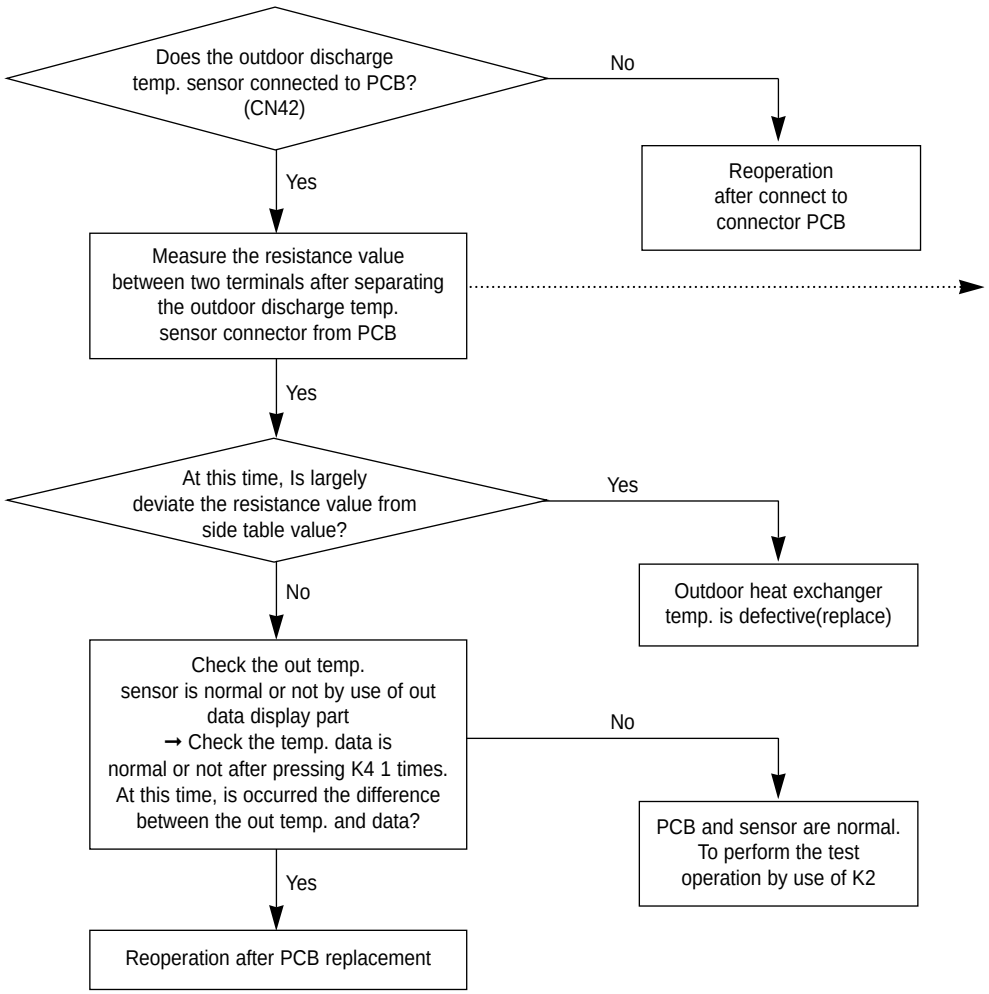
Outdoor unit display	**Er → t2 (Outdoor heat exchanger temp. sensor error(OPEN/SHORT)**
Indoor unit display	◑ (Operation) × (Timer) ◑ (Airflow) × (Filter)
How to determine	Disconnection and short of outdoor heat exchanger temp. sensor
Reason of error	Disconnection or leak of Applied sensor


Does the out heat exchanger temp. sensor connected to PCB? (CN41)
No
Reoperation after connect to connector PCB
Yes
Measure the resistance value between two terminals after separating the out heat exchanger temp. sensor connector from PCB
Yes
At this time, Is largely deviate the resistance value from side table value?
Yes
Outdoor heat exchanger temp. is defective(replace)
No
Check the out temp. sensor is normal or not by use of out data display part → Check the temp. data is normal or not after pressing K4 2 times. At this time, is occurred the difference between the out temp. and data?
No
PCB and sensor are normal. To perform the test operation by one of K2
Yes
Reoperation after PCB replacement

Temp. (˚C)	Resistance (kΩ)
70	2.2
60	3.0
50	4.2
40	5.8
30	8.3
20	12.1
10	18.0
0	27.3
-10	43.0

5-3-3 Outdoor discharge temp. sensor error(OPEN/SHORT)

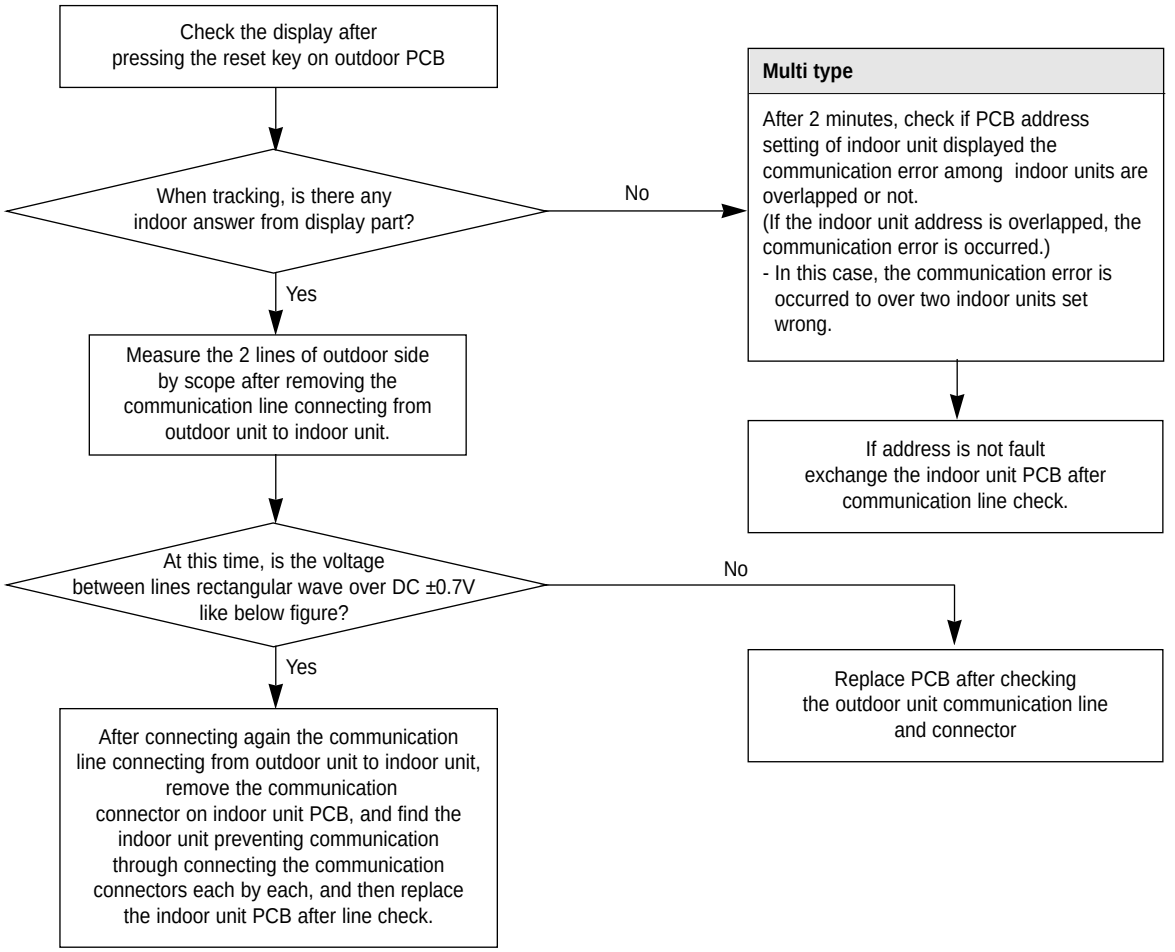
Outdoor unit display	**Er → t3 (Outdoor discharge temp. sensor OPEN/SHORT error)**
Indoor unit display	◑ (Operation) × (Timer) ◑ (Airflow) × (Filter)
How to determine	Disconnection and short of outdoor discharger temp. sensor
Reason of error	Disconnection or leak of Applied sensor

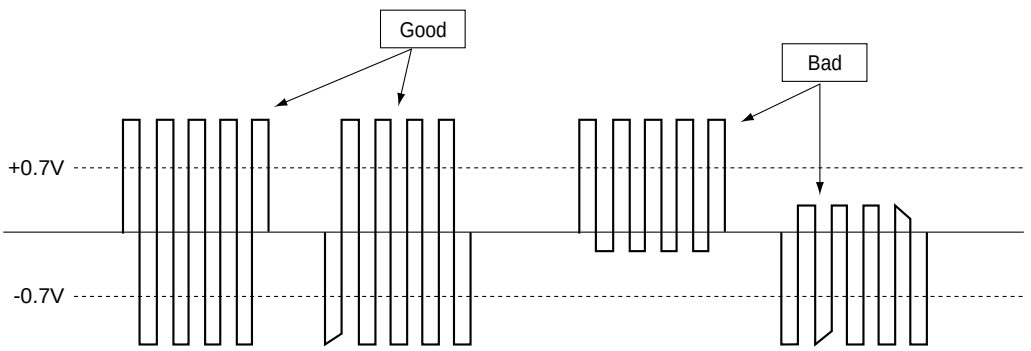

Does the outdoor discharge temp. sensor connected to PCB? (CN42)
No
Reoperation after connect to connector PCB
Yes
Measure the resistance value between two terminals after separating the outdoor discharge temp. sensor connector from PCB
Yes
At this time, Is largely deviate the resistance value from side table value?
Yes
Outdoor heat exchanger temp. is defective(replace)
No
Check the out temp. sensor is normal or not by use of out data display part → Check the temp. data is normal or not after pressing K4 1 times. At this time, is occurred the difference between the out temp. and data?
No
PCB and sensor are normal. To perform the test operation by use of K2
Yes
Reoperation after PCB replacement

Temp. (˚C)	Resistance (kΩ)
130	8.9
120	11.2
100	18.5
80	32
60	59
25	200
20	242
10	362
0	553

5-3-4 Communication error during the operation

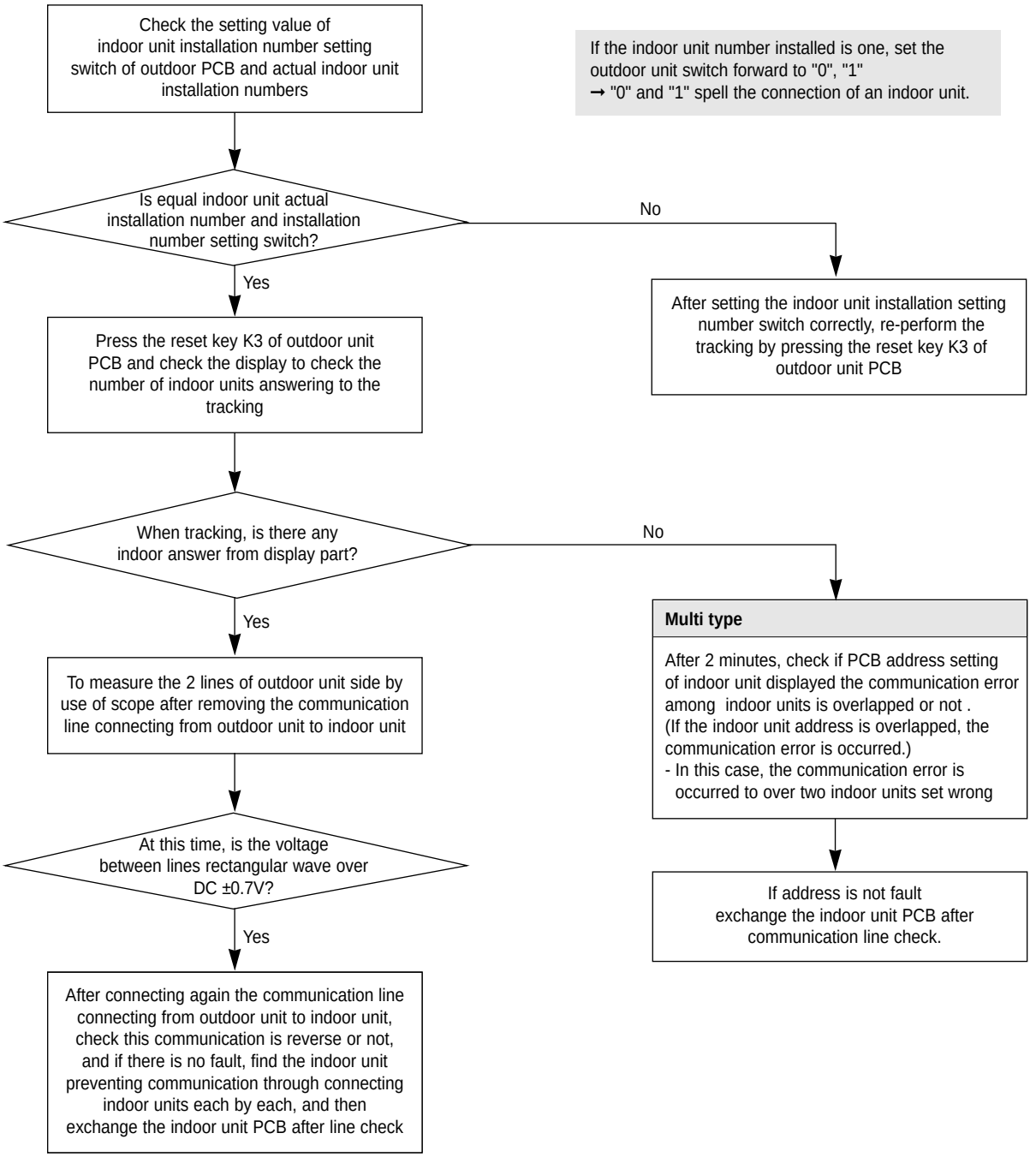
Outdoor unit display	Er → E1 (Communication error during the operation)
Indoor unit display	× (Operation) ◑ (Timer) ◑ (Airflow) × (Filter)
How to determine	Disconnection and short of communication lines
Reason of error	Communication error between the indoor unit and outdoor unit.


Check the display after pressing the reset key on outdoor PCB
When tracking, is there any indoor answer from display part?
No
Yes
Multi type
After 2 minutes, check if PCB address setting of indoor unit displayed the communication error among indoor units are overlapped or not.
(If the indoor unit address is overlapped, the communication error is occurred.)
- In this case, the communication error is occurred to over two indoor units set wrong.
If address is not fault exchange the indoor unit PCB after communication line check.
Measure the 2 lines of outdoor side by scope after removing the communication line connecting from outdoor unit to indoor unit.
At this time, is the voltage between lines rectangular wave over DC ±0.7V like below figure?
No
Yes
Replace PCB after checking the outdoor unit communication line and connector
After connecting again the communication line connecting from outdoor unit to indoor unit, remove the communication connector on indoor unit PCB, and find the indoor unit preventing communication through connecting the communication connectors each by each, and then replace the indoor unit PCB after line check.



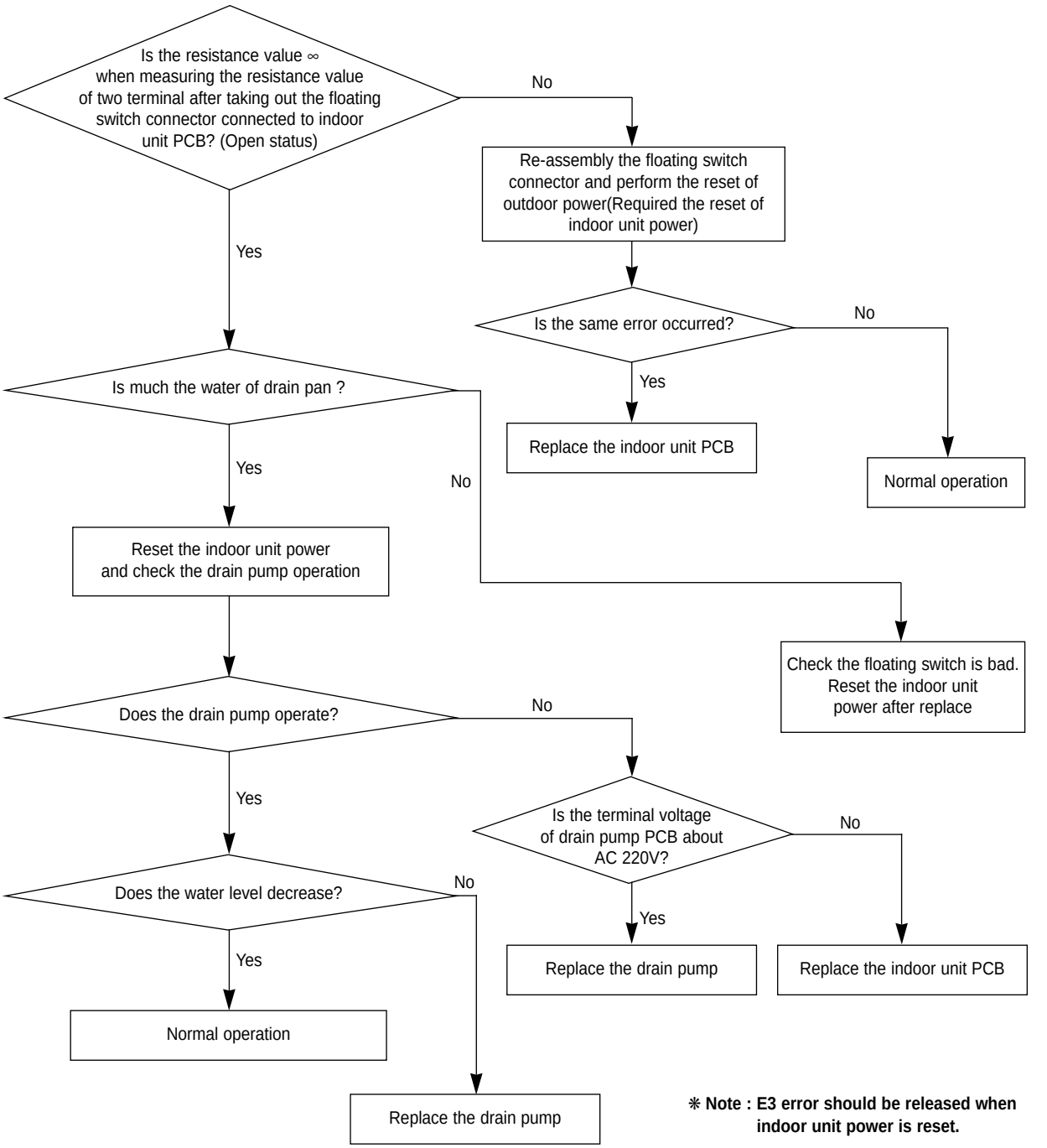
5-3-5 Communication error between indoor and outdoor after initial power input.

Outdoor unit display	**Er → E2 (Tracking error)**
Indoor unit display	× (Operation) ◑ (Timer) ◑ (Airflow) × (Filter)
How to determine	Mismatching the communicating indoor unit and setting switch indoor numbers When outdoor tracking
Reason of error	Communication error between the indoor unit and outdoor unit, and installation number switch setting miss


Check the setting value of indoor unit installation number setting switch of outdoor PCB and actual indoor unit installation numbers
If the indoor unit number installed is one, set the outdoor unit switch forward to "0", "1"
→ "0" and "1" spell the connection of an indoor unit.
Is equal indoor unit actual installation number and installation number setting switch?
No
Yes
After setting the indoor unit installation setting number switch correctly, re-perform the tracking by pressing the reset key K3 of outdoor unit PCB
Press the reset key K3 of outdoor unit PCB and check the display to check the number of indoor units answering to the tracking
When tracking, is there any indoor answer from display part?
No
Yes
Multi type
After 2 minutes, check if PCB address setting of indoor unit displayed the communication error among indoor units is overlapped or not .
(If the indoor unit address is overlapped, the communication error is occurred.)
- In this case, the communication error is occurred to over two indoor units set wrong
To measure the 2 lines of outdoor unit side by use of scope after removing the communication line connecting from outdoor unit to indoor unit
At this time, is the voltage between lines rectangular wave over DC ±0.7V?
Yes
If address is not fault exchange the indoor unit PCB after communication line check.
After connecting again the communication line connecting from outdoor unit to indoor unit, check this communication is reverse or not, and if there is no fault, find the indoor unit preventing communication through connecting indoor units each by each, and then exchange the indoor unit PCB after line check

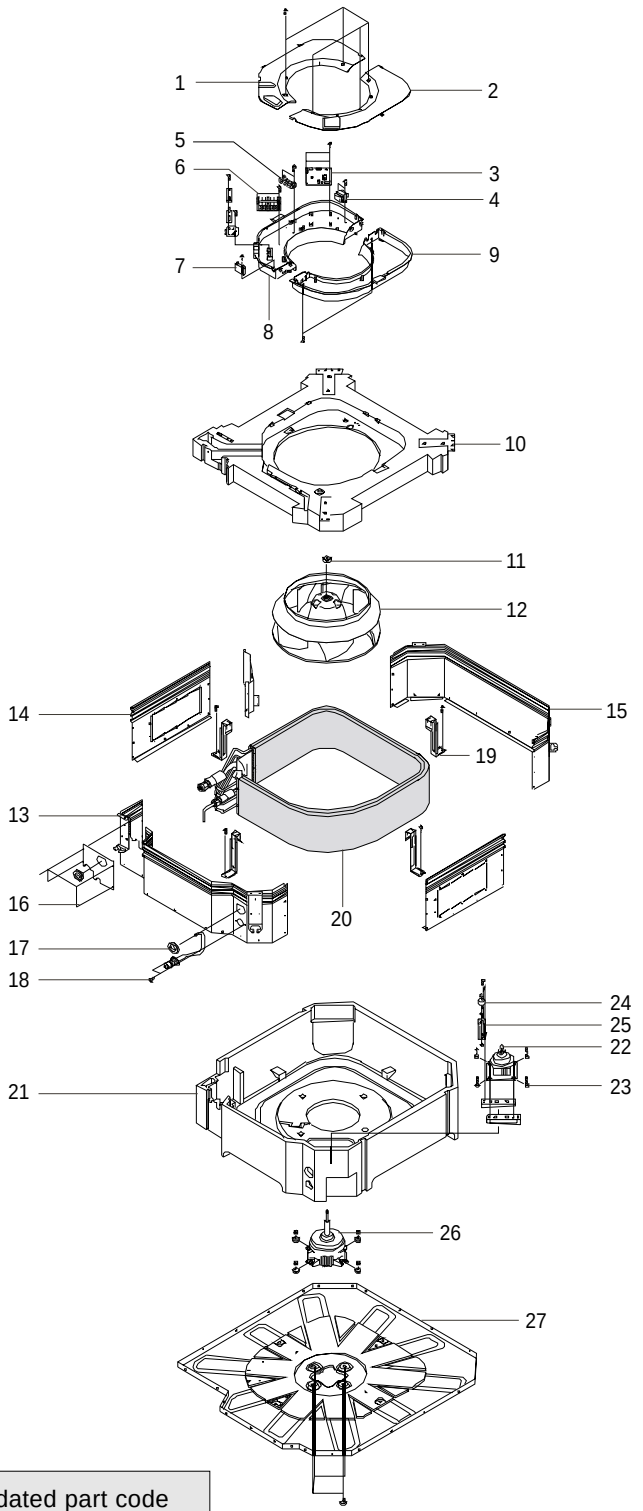
5-3-6 Indoor float switching error

Outdoor unit display	**Er → E3 (Indoor float switching error)**
Indoor unit display	× (Operation) × (Timer) ◑ (Airflow) ◑ (Filter)
How to determine	The status continues over 1 minute that indoor unit float switch is opened.
Reason of error	The rising of water level of drain pan due to the disorder of indoor unit drain pump, the badness of detection sensor


Is the resistance value ∞ when measuring the resistance value of two terminal after taking out the floating switch connector connected to indoor unit PCB? (Open status)
No
Re-assembly the floating switch connector and perform the reset of outdoor power(Required the reset of indoor unit power)
Yes
Is the same error occurred?
No
Yes
Replace the indoor unit PCB
Normal operation
Is much the water of drain pan ?
Yes
No
Reset the indoor unit power and check the drain pump operation
Check the floating switch is bad. Reset the indoor unit power after replace
Does the drain pump operate?
No
Yes
Is the terminal voltage of drain pump PCB about AC 220V?
No
Yes
Does the water level decrease?
No
Yes
Replace the drain pump
Replace the indoor unit PCB
Normal operation
Replace the drain pump
※ Note : E3 error should be released when indoor unit power is reset.

6. Exploded Views and Parts List

6-1 Indoor Unit



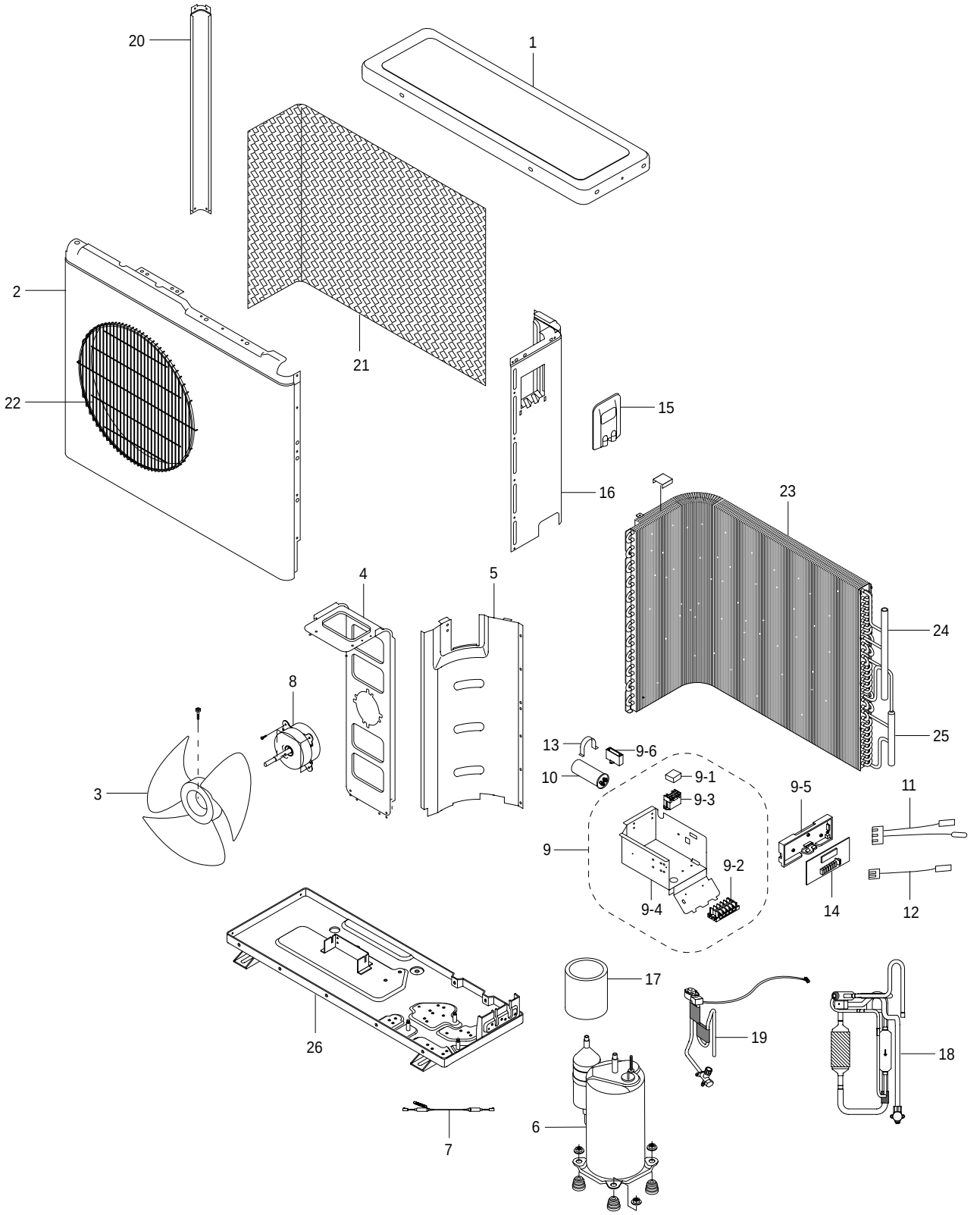
You can search for the updated part code number through the ITSELF.

URL : http://itself.sec.samsung.co.kr

■ Parts List

No.	Code No.	Description	Specification	Q'TY	
				CH052EAM	CH070EAM
1	DB63-00620A	COVER-CONTROL	AFPCH145EA0,HIPS(V0),-,-,-,-,-,-,DPM 5.0HP 4-WAY	1	1
2	DB63-00621A	COVER-CONTROL SUB	AFPCH145EA0,HIPS(HB),-,-,-,-,-,-,DPM 5.0HP 4-WAY	1	1
3	DB93-00843K	ASS'Y PCB MAIN-DPM 4-WAY	DPM 4-WAY,PCB	1	1
4	DB26-10065B	TRANS-POWER	DC17, AC230, 50Hz	1	1
5	DB65-00029M	TERMINAL-BOARD 5P	250V, 20A, 4P	1	1
6	DB65-00029X	TERMINAL BLOCK-6P	250V, 20A, 6P	1	1
7	2301-001369	C-FILM,LEAD-OTHER	3000nF,+10-5%,450V,BK,47x19x28mm,-	1	1
8	DB61-01210A	BASE-CONTROL	AFPCH145EA0,HIPS(V0),-,-,-,-,DPM 5.0HP 4-WAY	1	1
9	DB61-01211A	BASE-CONTROL SUB	AFPCH145EA0,HIPS(HB),-,-,-,-,DPM 5.0HP 4-WAY	1	1
10	DB94-00562A	ASS'Y DRAIN PAN-CUSHION	CH140EZM/XIA,ASS'Y	1	1
11	6021-000131	NUT-HEXAGON	2C, M12, ZPC(YEL), SM20C	1	1
12	DB94-00071B	ASS'Y FAN-TURBO	CH140EZM,Torsional Bush Boss	1	1
13	DB90-01081A	ASS'Y CABINET FRONT	CH070EZM,NEW 4WAY CASSETTE	1	1
14	DB64-00721A	CABINET-SIDE	AFPCH072EA0,SGCC-M,T0.7,-,-,-,-,DPM 7200W 4-WAY	1	1
15	DB90-01082A	ASS'Y CABINET BACK	CH070EZM,NEW 4WAY CASSETTE	1	1
16	DB90-01092A	ASS'Y COVER-PIPE	CH140EZM,CH070EZM,-	1	1
17	DB90-01010A	ASS'Y COVER-DRAIN	CH140EZM,NEW 4WAY CASSETTE	1	1
18	DB94-00345B	ASS'Y-HOSE DRAIN	NO,NO,132.7,NO,R22,-,CH140EZM,-	1	1
19	DB90-01261A	ASS'Y HOLDER-EVAP	CH105EZM,-	1	1
20	DB96-02491G	ASS'Y EVAP-UNIT	CH070EAM,-	-	1
	DB96-02491F	ASS'Y EVAP-UNIT	CH052EAM,-	1	-
21	DB90-01083B	ASS'Y BASE IN-CUSHION	AVPCH060B11,-	1	1
22	DB31-00207A	PUMP-DRAIN	-,220V,60Hz,-,-,-	1	1
23	DB73-00022B	RUBBER-PUMP	AKM-2800,NBR(BLK),-,50,14,-,-,-,-,-	1	1
24	DB95-00131C	ASS'Y-SENSOR FLOAT	CH140EZM,NEW 4WAY CASSETTE	1	1
25	DB61-01522A	BRACKET-SWITCH	AVMCH052B11,-,-,-,-,-,-	1	1
26	DB31-00204G	MOTOR FAN	OSME 166SAC(S031),4WAY-P/J,2A,50Hz,230V	-	1
	DB31-00204F	MOTOR FAN	OSME 156SAC(S030),4WAY-P/J,2A,50Hz,230V	1	-
27	DB90-00982A	ASS'Y CABINET-BASE	CH140EZM,NEW 4WAY CASSETTE	1	1

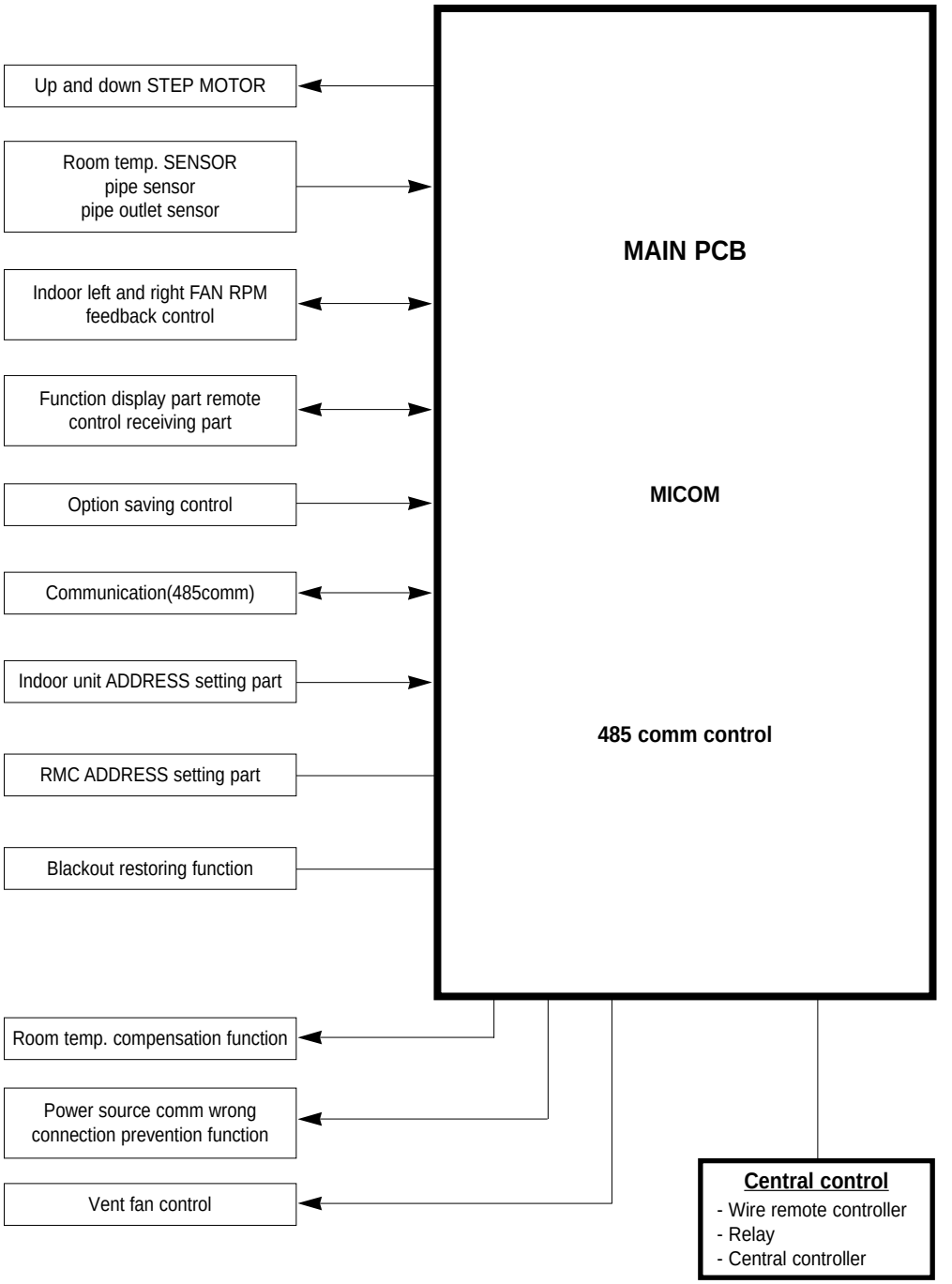
6-2 Outdoor Unit



■ Parts List

No.	Code No.	Description	Specification	Q'TY	
				UH052EAMT	UH070EAMT
1	DB90-01363A	ASS'Y-COVER TOP	ASS'Y	1	1
2	DB90-01293A	ASS'Y CABI-FRONT	ASS'Y,LOGO	1	1
3	DB67-00140A	FAN-PROPELLER	AS+GF20%,OD460,3BLADE	1	1
4	DB61-01167A	BRACKET-MOTOR	SGCC-M,T1.6	1	1
5	DB67-00261A	PARTITION	SGCC-M,T0.8	1	1
6	DB95-00454A	ASS'Y COMP	SIAM,NN29VACMT	-	1
	DB95-00455A	ASS'Y COMP	SIAM,NN21VBAMT	1	-
7	DB95-30013T	ASS'Y HEATER COMP	40W	1	1
8	DB31-00216A	MOTOR-FAN	OSEM-886SRC(S509)/YDK80-6X	-	1
	DB31-00027G	MOTOR-FAN	OSEM-906SRC(S507)/YDK55-6T	1	-
9	DB93-02410A	ASS'Y CONTROL OUT	ASS'Y	-	1
	DB93-02410B	ASS'Y CONTROL OUT	ASS'Y	1	-
9-1	DB26-10070A	TRANS-POWER	AC230V,DC17V	1	1
9-2	DB65-00112A	TERMINAL BLOCK-6P	35A 4P,25A 2P	1	1
9-3	3501-001204	MAGNETIC-SWITCH	MUF20CF,2A	1	1
9-4	DB90-00556B	ASS'Y CASE-CONTROL OUT	ASS'Y	1	1
9-5	DB61-00152A	CASE-PCB-OUT	T2.5,ABS,BLK	1	1
9-6	2301-001369	CAPACITOR-FAN	3uF/450VAC	1	1
10	2501-001236	CAPACITOR-COMP	30uF/450VAC	-	1
	2501-001235	CAPACITOR-COMP	25uF/450VAC	-	1
	2501-001240	CAPACITOR-COMP	50uF/450VAC	1	-
11	DB32-00021F	THERMISTOR	AWG22,L470,L550	1	1
12	DB32-00071C	THERMISTOR	AWG22,L600	1	1
13	DB61-01685A	BAND-CAPACITOR	SGCC-M	-	1
	DB69-60008A	BAND-CAPACITOR	SGCC-M	1	-
14	DB93-00185K	ASS'Y PCB MAIN-OUT	CEILING OUTDOOR PCB	1	-
	DB93-00185J	ASS'Y PCB MAIN-OUT	CEILING OUTDOOR PCB	-	1
15	DB63-10490A	COVER-CONTROL	ABS,SC-900073R	1	1
16	DB90-01292B	CABINET-SIDE RH	SECC-P,T0.8	1	1
17	DB62-01471A	INSU-CLOTH COMP	UH070EAMT	-	1
	DB62-02295A	INSU-CLOTH COMP	UH052EAMT	1	-
18	DB96-02876A	ASS'Y 4WAY VALVE	ASS'Y	-	1
	DB96-02877A	ASS'Y 4WAY VALVE	ASS'Y	1	-
19	DB96-02896A	ASS'Y EEV VALVE	ASS'Y	-	1
	DB96-02896B	ASS'Y EEV VALVE	ASS'Y	1	-
20	DB63-00613A	GUARD-COND	SECC-P,T1.6	1	1
21	DB61-01221A	GUIDE-SCREEN	P.E.H 100%,T2.5,1015x615,BLK	1	1
22	DB63-00320A	GUARD-FAN	HSWR,460	1	1
23	DB75-00251A	COND	UH070EAMT,UH052EAMT	1	1
24	DB96-02936A	ASS'Y COLLECTOR IN	ASS'Y	1	1
25	DB96-02937A	ASS'Y COLLECTOR OUT	ASS'Y	1	1
26	DB90-01291A	ASS'Y BASE OUT	ASS'Y	1	1

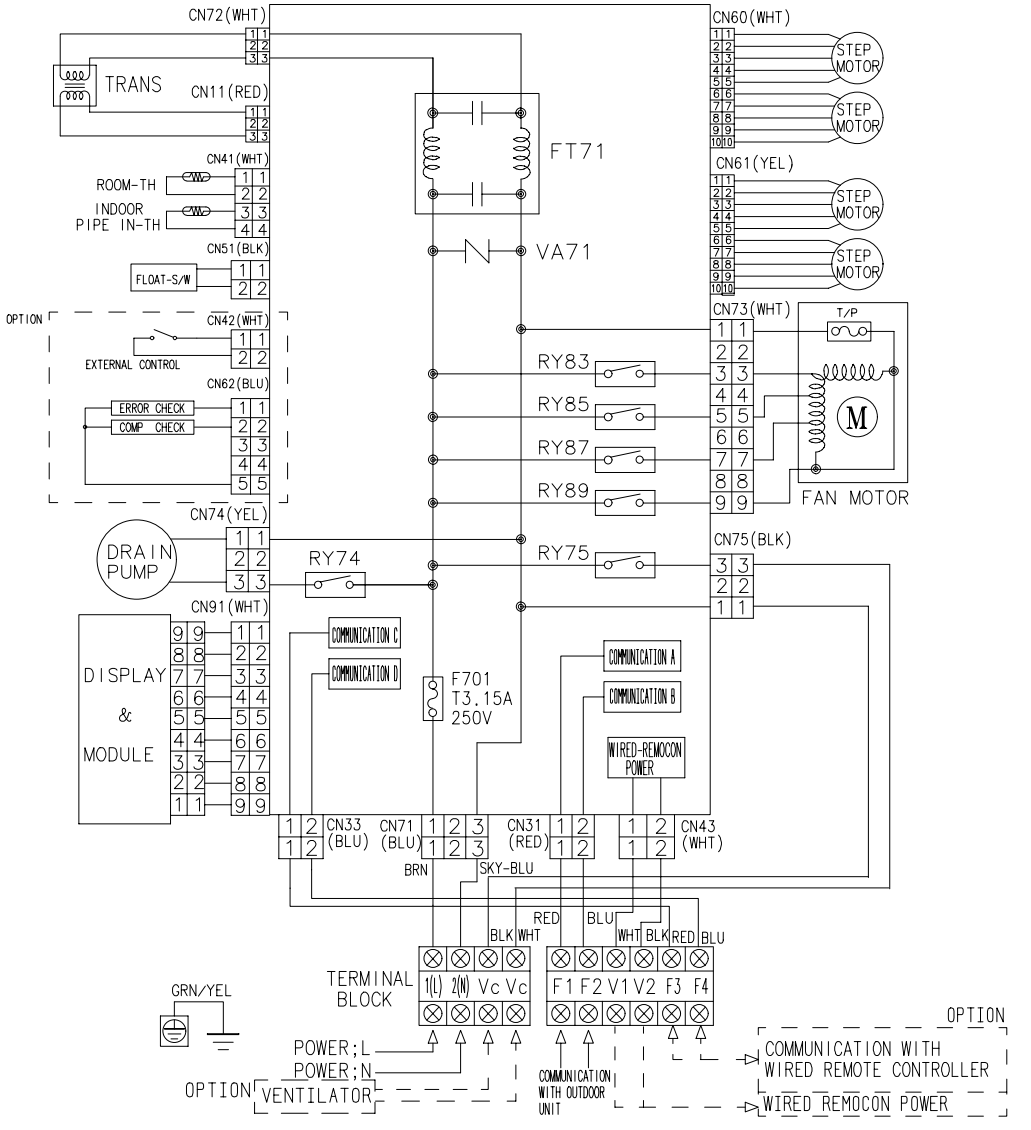
7. Block Diagram



- 485 comm applied, room temp. compensation
- EEPROM option saving and blackout restoring function
- Left and right FAN MOTOR phase control
- Power-comm line misconnection prevention function
- Cost saving related sub-option separation between indoor unit communication part
- Option part sub-development according to the SVC structure

8. Wiring Diagram

8-1 Indoor Unit



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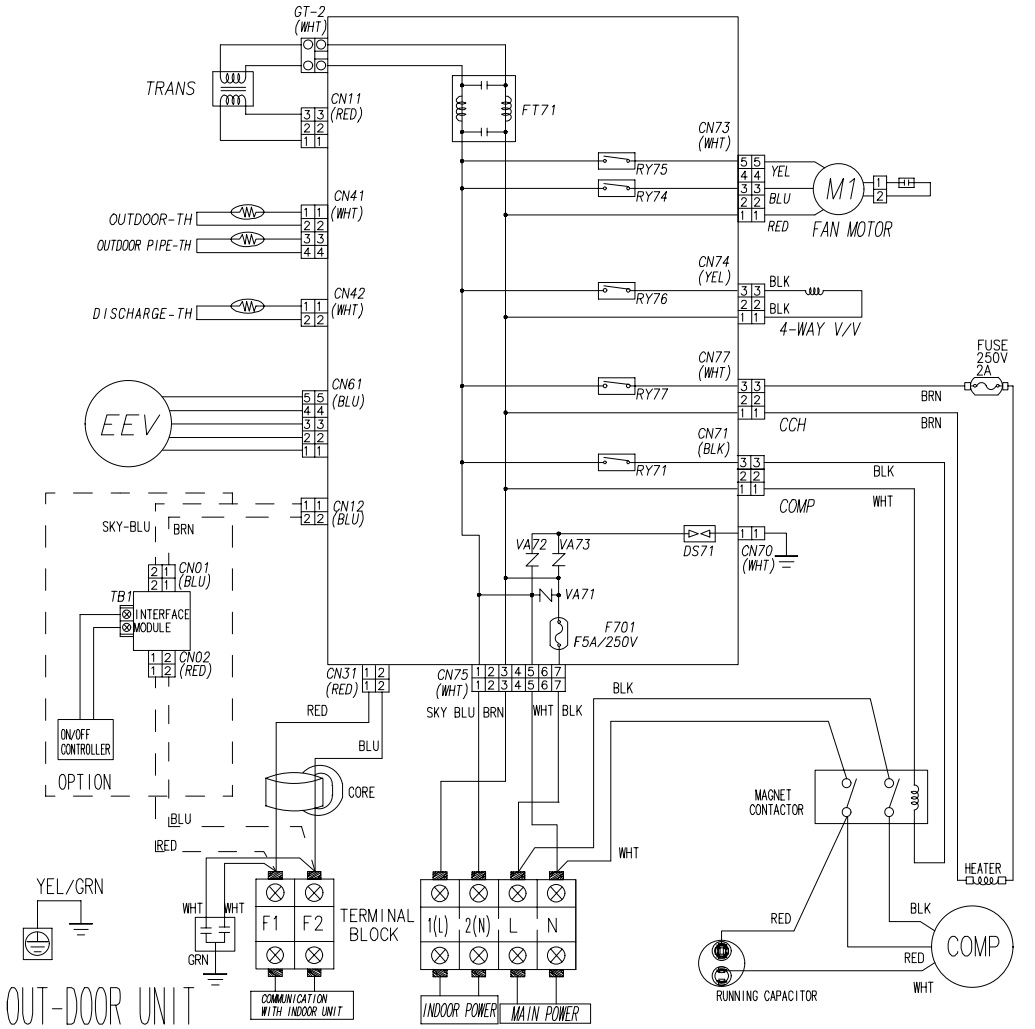
■ UH052EAMT



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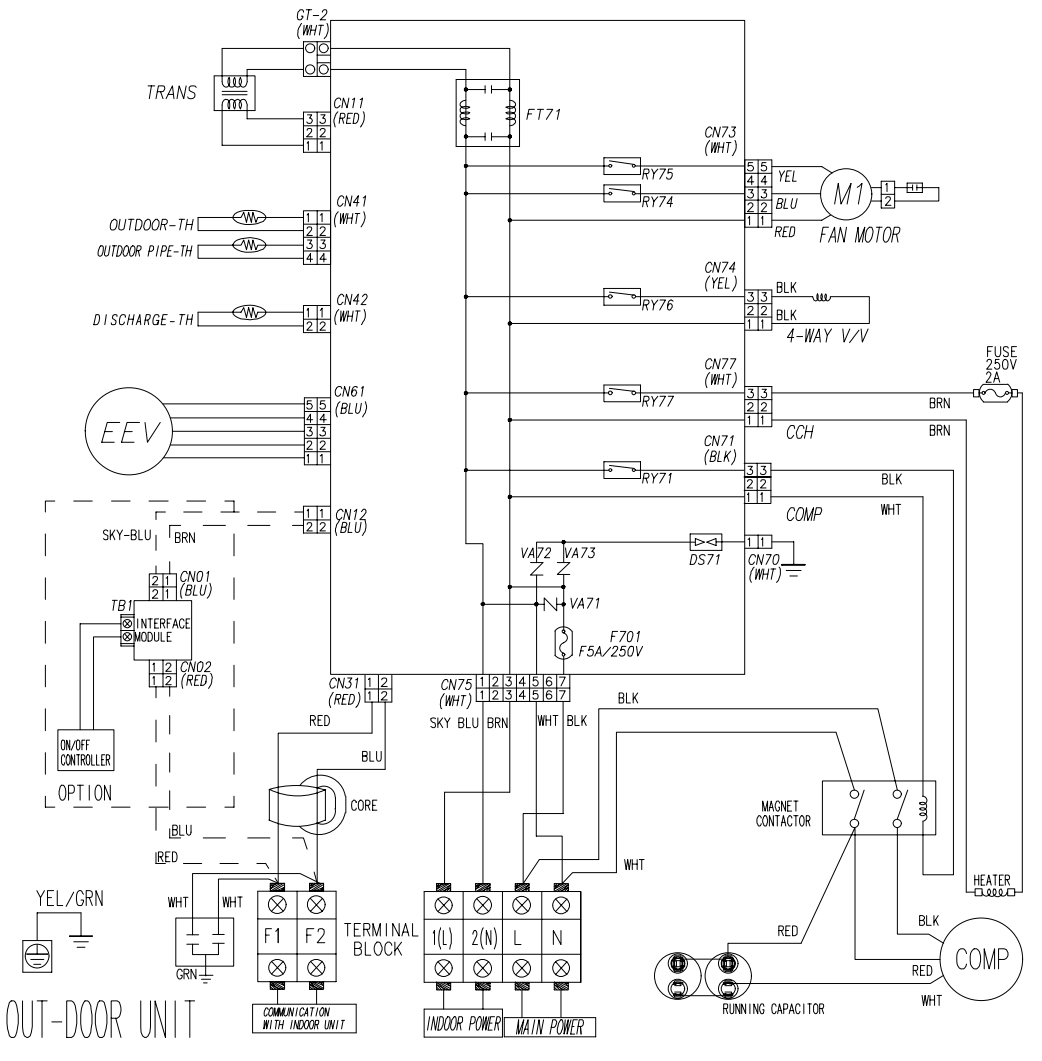

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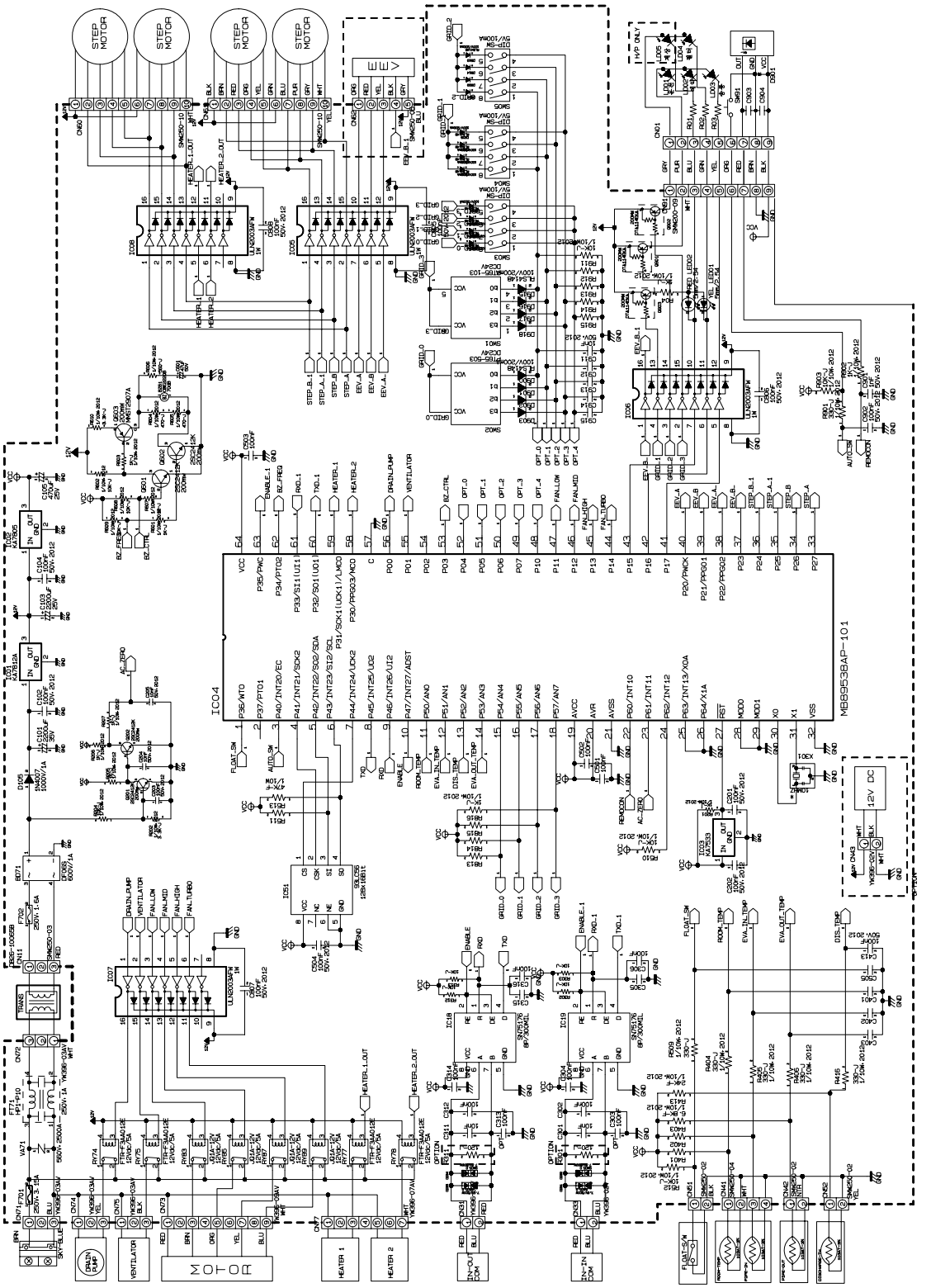
9. Schematic Diagram

9-1 Indoor Unit



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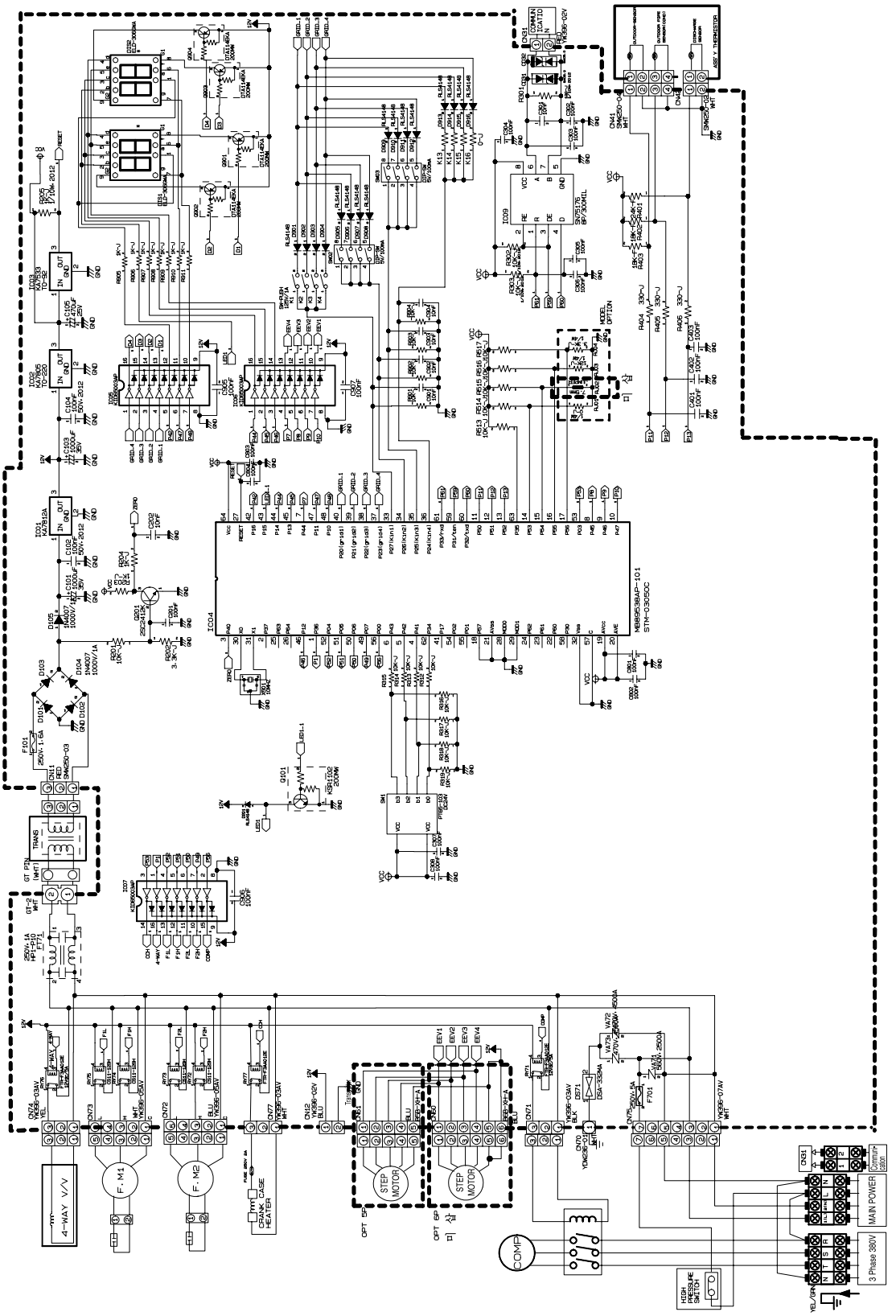
■ UH052EAMT



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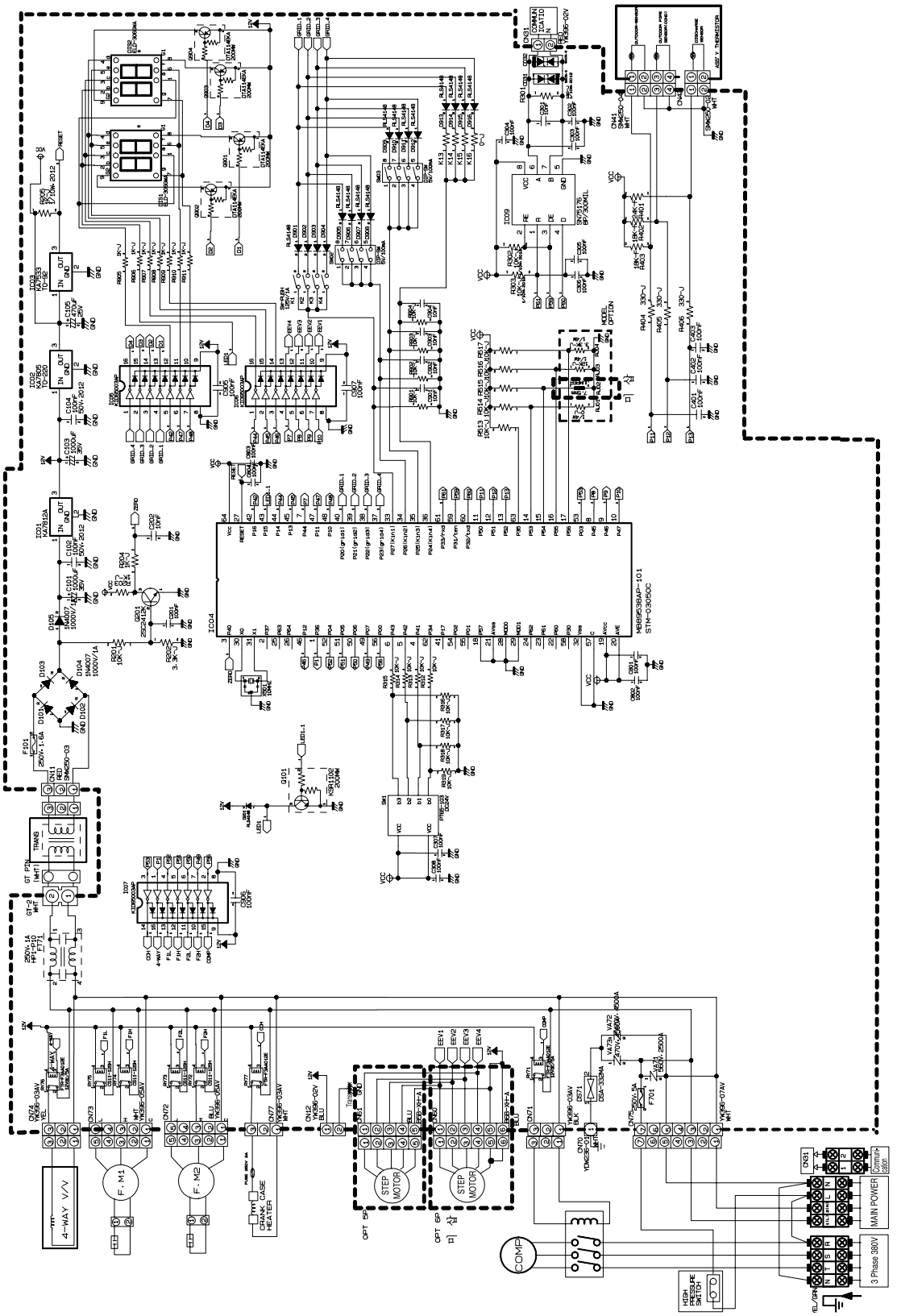

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UPDATE LOG SHEET

Application date	Page	Part#	Note(Cause & Solution)	S/Bulletin#
2005. Feb. 14	35, 39	DB93-00843K	Applied New PCB Old:DB93-00843H -> New:DB93-00843K	-
		DB65-00029X	Applied New Terminal Block Old:DB65-00029U -> New:DB65-00029X	-

Use this page to keep any special servicing information. (Service Bulletin, etc.)
If only parts number changes, Just change parts number directly on parts list.
And if you need more information, please see the service website.

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